# User Guide

## Uplogix Control Center

**Version 5.1**

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Information in this document is subject to change without notice.

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# Contents

# About this guide

This guide describes how to install and work with the Uplogix Control Center.

For best results, the Local Manager and the Control Center that manages it must use the same version of software.

Examples:

A Control Center running version 4.7 or earlier, cannot manage Local Managers that have been upgraded to version 5.1. A Control Center running version 5.1 can provided limited management to Local Managers that are using version 4.7 or earlier.

A Control Center running any version 5.1.x software can manage Local Managers running any 5.1.x software.

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## Target audience

This guide is intended for trained, qualified network support technicians responsible for installing and using the Uplogix Control Center.

## Typographical conventions

The following conventions are used in this guide.

Sample text from the Uplogix LMS command line interface is presented in `this font`. Text that you enter is presented in **`this font`**. For example:

```
[admin@A505100303]# show who
admin ssh Mar 22 13:38 (192.0.2.101)
```

Keyboard characters are enclosed in angle brackets. For example, press <Enter>.

Navigation paths to command equivalents on the Control Center are shown in **this font**. For example:

**Administration > Server Settings**

Menu items and buttons in the Control Center interface are indicated in **this font**. For example:

Click **Save**.

References to other Uplogix documentation are presented in *this font*. For example:

For a detailed discussion of rules and monitors, refer to the *Guide to Rules and Monitors*.

## Safety summary

Following all cautions and warnings will ensure your own safety and protect the Control Center from potential damage or loss of data.

**Caution:** Follow all federal, state, and local regulations when disposing of this product.

Read and understand the following instructions before using the Control Center:

- Use only electrical extension cords with a current rating equal to or greater than the Uplogix Control Center's current rating.
- Always disconnect the Control Center from power before cleaning and servicing.
- Do not spray liquids directly onto the Control Center when cleaning. Always apply the liquid first to a static free cloth.
- Do not immerse the Control Center in any liquid or place any liquids on it.
- Connect the Control Center to a grounded outlet.
- Only connect the Control Center to surge-protected power outlets.
- Keep ventilation openings free of any obstructions.

SAVE THESE INSTRUCTIONS.

## Uplogix Glossary

| Term | Definition |
|---|---|
| Archive | Local Managers send bulk data, such as: session logs, device files, change logs, and all other non-urgent statistical data to the Control Center every 60 minutes (default) using this encrypted HTTPS data communication protocol on port 8443. |
| Heartbeat | Local Managers communicate with the Control Center every 30 seconds (default) using this secure HTTPS communication method on TCP port 8443. Device state, alarms and configuration parameters are sent during a heartbeat. |
| Local Manager (LM) | A physical device or virtual machine directly connected to managed network devices and servers and that runs the Uplogix Local Management Software (LMS). |
| Pulse | Used by the Local Manager to determine network connectivity by sending 15 bytes of data to an echo server on TCP port 7 (echo) every 30 seconds. Up to three may be defined – all must fail for the Local Manager to declare the in-band network is down. |
| Uplogix 500 | The Uplogix 500 Local Manager device is a fixed 5-port model that delivers advanced remote management capabilities for branch offices and remote locations on a robust platform. An additional (6th) port is available for power management connecting to a switched PDU (ServerTech, APC, etc.). |
| Uplogix 5000 | The Uplogix 5000 Local Manager device is a modular chassis model with higher port density options that delivers advanced remote management capabilities for larger office and data center locations. The 5000 device has a power management port used to connect and manage switched PDUs (ServerTech, APC, etc.). |
| Uplogix Control Center(UCC) | Centralized point of control for all Local Managers and managed devices deployed throughout the distributed IT environment. The web-based graphical user interface (GUI) enables IT administrators to easily manage, configure, and control all network devices and servers connected to Local Managers. And access to real time data from these devices is supplied. The Control Center is also the integration point for all remotely collected data and diagnostics for upstream delivery to NSM tools such as Solarwinds, HP OpenView, CA Spectrum, Tivoli, etc. |

# Installation and configuration

This chapter covers:

- Site requirements—power, temperature, air flow, and related safety information
- Unpacking and installation—physical connections
- Provisioning the server—configuration using the setup script
- Completing access and security setup—logging in to the server via SSH connection; changing the default password
- Port communication—inbound ports

## Site requirements

Ensure that the power source:

- Provides the appropriate line voltage and frequency - 100 to 240 VAC, 50/60 Hz
- Provides overload protection
- Is connected to earth ground

**Warning:** The power source must meet all these requirements to ensure safe and reliable operation.

Ensure that the installation site meets these requirements:

- Ambient temperature does not exceed 95° F (35° C)
- The site provides at least 3 inches (8 cm) clearance beyond the Control Center's ventilation openings

**Caution:** The unit will overheat if the site does not meet these requirements.

## Unpacking and installation

Before you begin the tasks in this section, verify your installation site meets all site requirements.

### Unpacking the shipping box

Verify that you have received the following items:

- Control Center
- Power cords
- Rack mount kit

### Installing the server in a rack

The Control Center is designed for installation in a 19-inch rack. Follow the instructions supplied with the mounting brackets.

**Caution:** Do not stack the chassis on other equipment. If the chassis falls, it can cause injury and equipment damage.

### Connecting power

To power up the server, complete the following steps:

1. Connect the server to a suitable power source. The Control Center uses dual power supplies for redundancy.
2. Connect both of the included power cords to the power receptacles located at the right rear of the server and to A/C power sources.

**Caution:** The plug-socket combination serves as the main disconnecting device and must be accessible at all times.

3. Press the power button on the front left to switch the system on.

### Connecting the Ethernet port

Connect the lowest number Ethernet interface on the Control Center to your LAN.

### Connecting the management console port

To manage the server using the TTY console, connect a serial cable to an Uplogix Local Manager.

The default speed setting is 9600, 8, N, 1.

## Provisioning

Configure the Control Center using one of these methods:

- Connect a standard VGA monitor, a keyboard and a mouse
- Configure using the console port by connecting your computer directly to the server using the DB-9 connector on the server's rear panel. Supported terminal clients include:
    - Windows HyperTerminal
    - ZTerm (Macintosh OS X)
    - Minicom (Unix/Linux)

> Console default communication settings are 9600 baud, 8 data bits, 1 stop bit, no parity, and no flow control. Set your terminal emulator to use ANSI encoding for best results.

Log into the Control Center using the `emsadmin` user account. The default password is `password`. To run the initial setup, use the netSetup.sh script located in /uplogix/embassy/.

```
ajones ~ $ ssh emsadmin@192.0.2.11
emsadmin@192.0.2.11's password:
[emsadmin@ems13 ~]$ /uplogix/embassy/netSetup.sh
Run Setup? (y/n) [y]
Install multi application servers? (y/n) [n]
Interface eth0 IP Address: 192.0.2.11
Interface eth0 Gateway: 198.0.2.1
Interface eth0 Netmask: 255.255.255.0
Configure eth1? (y/n) [n]
Disable eth1? (y/n) [n]
Configure hostname? (y/n) [n] y
Hostname: XYZCo_TX
Configure DNS? (y/n) [n] y
Primary DNS Server IP: 198.51.100.1
Secondary DNS Server IP: 198.51.100.2
Tertiary DNS Server IP:
Configure NTP? (y/n) [n] y
NTP Server: 198.51.100.112
Change emsadmin password? (y/n) [n]
Commit? (y/n) y
***** Editing /etc/sysconfig/network-scripts/ifcfg-eth0 *****
  Gateway '198.51.100.1'
  Netmask '255.255.255.0'
  IP Address '192.0.2.11'
(output removed)
```

After committing your changes, the server displays messages as it updates the affected files.

Log out when you are returned to the command line prompt.

```
[emsadmin@ems13 ~]$ logout
```

If the server's hostname was set or changed, the change does not appear in the command prompt until your next session.

## Completing access and security setup

The Control Center uses Secure Shell (SSH) v2 software to provide secure remote access. Your remote client application must also support SSH v2. Use the SSH client to initiate a secure remote connection to the server.

> The root account is not allowed to log in via SSH. Use the `emsadmin` account and supplied passwords.

Supported Secure Shell clients include:

- PuTTY
- SSH® Tectia™
- VanDyke® SecureCRT®
- SSHTerm for Windows
- iTerm for Macintosh OS X
- UNIX's built-in ssh command

For example, from a UNIX command line, type:

```
ssh emsadmin@192.0.2.0
```

> The first time your SSH client connects to an SSH host following installation or upgrade, you may see an SSH key fingerprint message. This is normal. The client usually caches the key for subsequent use and warns if the host has changed, often indicating network eavesdropping.

To ensure security, change the `emsadmin` password after logging in for the first time. Use the UNIX `passwd` command:

```
[emsadmin@station]# passwd
Enter Old Password: ********
New Password [********]: ********
Confirm Password: ********
```

The `emsadmin` user has super-user privileges with the `sudo` command. Review your security policy to determine if another user account should be created, though the account is limited to basic IP addressing of the server.

## Port communication

The Control Center is designed to receive and respond to requests from Local Managers. The following inbound ports are used during normal operation.

| Port | Usage Description |
|---|---|
| TCP 443 | HTTP, provides access to the Control Center GUI |
| TCP 8443 | Heartbeat and Archive, used for communication between Control Center and Local Managers |
| TCP 7 | Echo, used by the Pulse feature |
| TCP 22 | SSH, used to connect to the Control Center CLI |
| TCP 80 | HTTP, provides access to the Control Center GUI, redirects to 443 |
| UDP 123 | NTP, provides NTP servers to managed devices |

TCP 443 and TCP 8443 are required for normal Control Center and Local Manager interactions.

# Working with the web interface

A web interface is provided with the Control Center. Minimum requirements for the interface are Internet Explorer 7.0 and Firefox 3.6, with 128-bit encryption and the Java applet 1.5 plug-in. Recommended browsers include the latest stable release of Internet Explorer, Firefox, or Google Chrome.

This chapter covers basic information about the web interface:

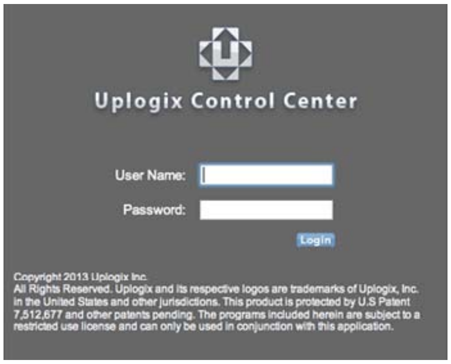
- Logging in—start a session via a web browser
- Navigating the web interface—screen layout and navigational cues
- Entering information—things to know about typing in text fields
- Printing—capture the current view

## Logging in

Direct a browser to **`http://ipaddress`**, where `ipaddress` is the address of the server. Requests made to port 80 (http) of the Control Center are redirected to port 443 (https).

Your browser is likely to present a strong warning stating that the site's security certificate was issued for a different IP address. This is normal. The message will disappear if the presented certificate is accepted by the device or once a valid certificate is installed.

The browser displays the login screen.



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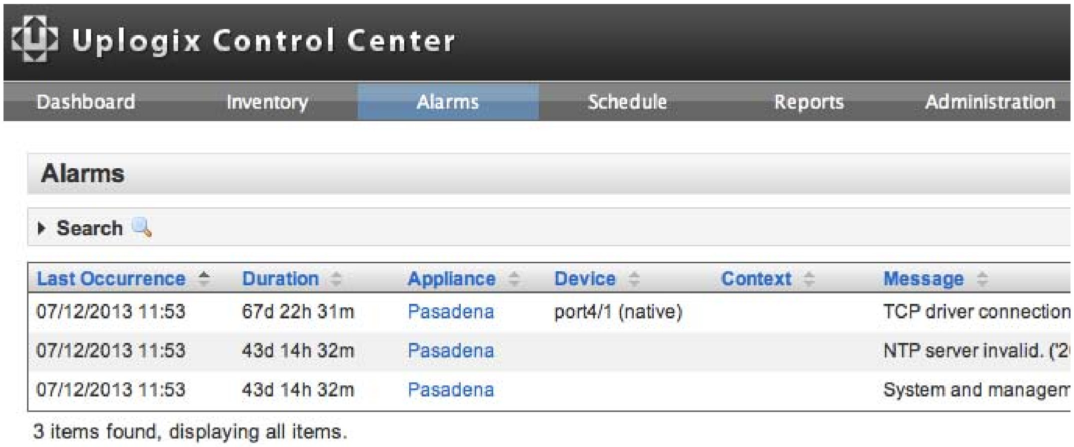
Log in using your username and password. Both are case-sensitive. If setting up the Control Center for the first time, log in using the default username and password as follows:

```
Username: administrator
Password: password
```

For security purposes, it is recommended that you immediately change the administrator's password, create a user with administrative authority, and disable the account. For information on setting passwords and disabling accounts, see Creating and editing user accounts.

Once successfully logged in, the Alarms page appears if there are active alarms. Otherwise, the Dashboard page is displayed.



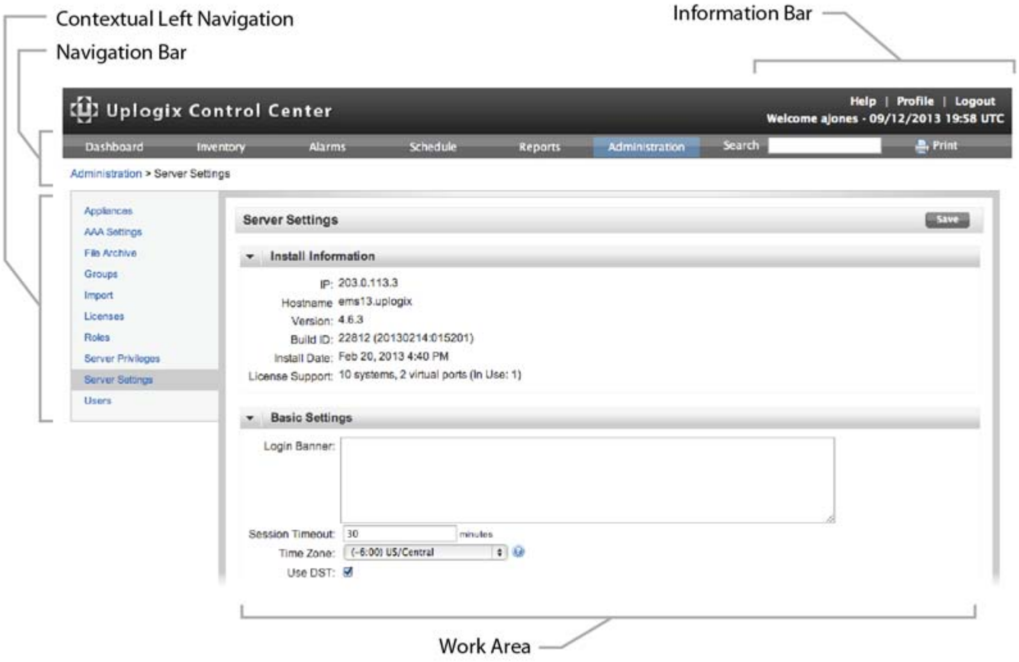
| Last Occurrence | Duration | Appliance | Device | Context | Message |
|---|---|---|---|---|---|
| 07/12/2013 11:53 | 67d 22h 31m | Pasadena | port4/1 (native) | | TCP driver connection |
| 07/12/2013 11:53 | 43d 14h 32m | Pasadena | | | NTP server invalid. ('2 |
| 07/12/2013 11:53 | 43d 14h 32m | Pasadena | | | System and managem |

3 items found, displaying all items.

## Navigating the web interface

The Uplogix web interface presents four areas:

- The information bar shown at the top of the screen
- The navigation bar which displays the six main tabs
- The contextual left navigation which displays additional menu items
- The work area showing information or fields for input entry.



Welcome ajones - 09/12/2013 19:58 UTC

IP: 203.0.113.3
Hostname ems13.uplogix
Version: 4.6.3
Build ID: 22812 (20130214:015201)
Install Date: Feb 20, 2013 4:40 PM
License Support: 10 systems, 2 virtual ports (In Use: 1)

Login Banner:
Session Timeout: 30 minutes
Time Zone: (-6:00) US/Central
Use DST: ☑

### Information bar

The information bar shown at the top of the screen displays the time and date as well as links to help, editing your user profile, and logging out of the Control Center.

### Navigation bar

The navigation bar displays six tabs providing access to a set of related tasks and information. The active area is indicated by the highlighted tab.

- Dashboard—Displays brief summary information, alarms, and events for user selected Local Managers.
- Inventory—Displays the organization of your Uplogix deployment, including inventory groups and individual Local Managers.
- Alarms—Displays a summary of active alarms.
- Schedule—Use to define actions not triggered by rules.
- Reports—Provides access to create report assignments, view report files, and sort reports by label.
- Administration—Provides access to auditing, user administration, and configuration functions.

### Contextual left navigation

The contextual left navigation displays additional menu items specific to the section of the user interface.

> The controls available to you are based on the privileges assigned to your account. Unavailable items appear in gray.  Mouse over a gray item to show a tooltip of the missing privilege.

#### Breadcrumb navigation

Breadcrumb navigation is provided at the top of the work area throughout the Control Center. For example, when viewing the Detail page for a Local Manager, the following navigation displays:

**Inventory > XYZco_TX> Region 1 > A505100303**

Each element is a link to another page, allowing you to move quickly between pages.

Some parts of the user interface are displayed in different ways depending on the browser you use.

### Work area

The work area displays information and provides input fields to update or reconfigure the Control Center or Local Manager.

## Entering information

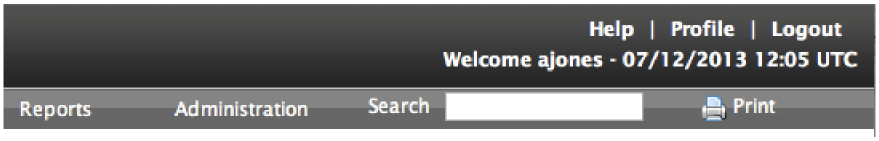
Some features require you to enter text - for example, when creating a user account you must enter a user name and may choose to enter a description.

Use only printing characters to complete text fields. Spaces may be used in descriptions, but not in naming accounts, roles, or other information that users may work with from an individual Local Manager's command line.

User names and passwords are case-sensitive. If you create a user account named `ajones`, the person will not be able to log in as `Ajones`. Some other information is case-sensitive as well.

## Printing

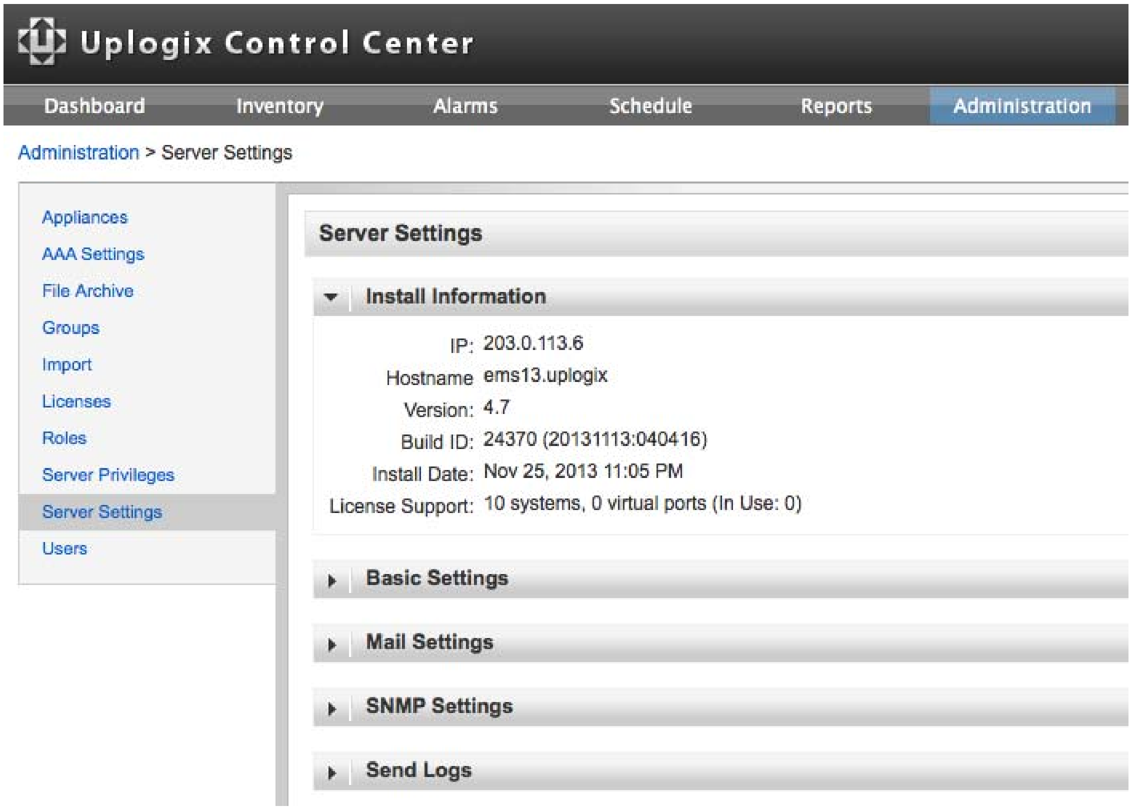
The Uplogix web interface provides a Print icon in the information bar.



Use Print to print the current contents of the work area. If a suitable PDF creator printer driver is installed, use the Print icon to save the current view as a PDF file.

# Managing the Uplogix Control Center

This chapter describes the **Administration > Server Settings** selections.



IP: 203.0.113.6
Hostname ems13.uplogix
Version: 4.7
Build ID: 24370 (20131113:040416)
Install Date: Nov 25, 2013 11:05 PM
License Support: 10 systems, 0 virtual ports (In Use: 0)

This chapter covers:

- Install information—obtain the IP address, hostname, version, and build
- Setting the login banner—add a custom message on the login screen
- Setting the Web session timeout—change the default Web session timeout
- Setting the time zone—make adjustment for daylight saving time
- Configuring mail settings—specify a mail server and originating address for outgoing messages
- Configuring SNMP settings—specify an SNMP server
- Send logs—send logs from the Control Center

## Install Information

**Administration > Server settings > Install Information**

The install information lists the IP address, hostname, version of software currently installed, software build, date of software installation, and the number of Local Manager licenses on the server.

## Basic Settings

**Administration > Server settings > Basic Settings**

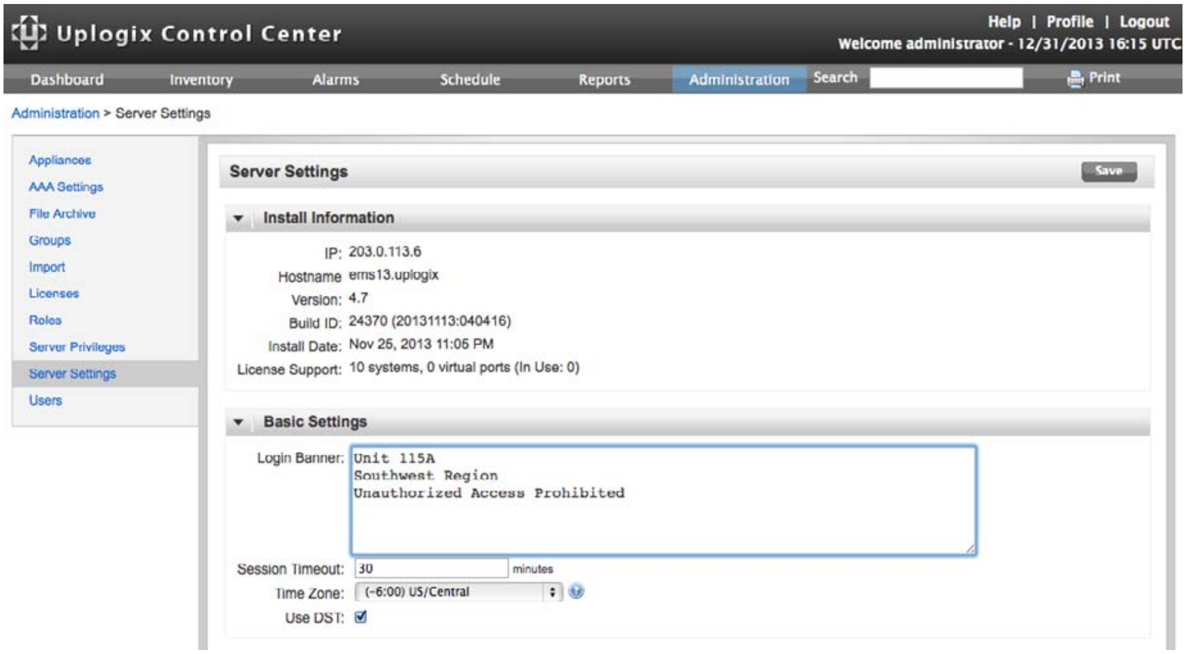
Use Basic Settings to set the:

- Login Banner—specify text to be displayed in the Control Center login screen
- Session Timeout—set the Control Center inactivity timeout
- Time Zone—set the system time zone

### Setting the login banner

Specify the text to display in the Control Center login screen. Line breaks entered in this text box are ignored.

> Use only printing characters in the banner and other text fields. Spaces are considered printing characters.



Server Settings

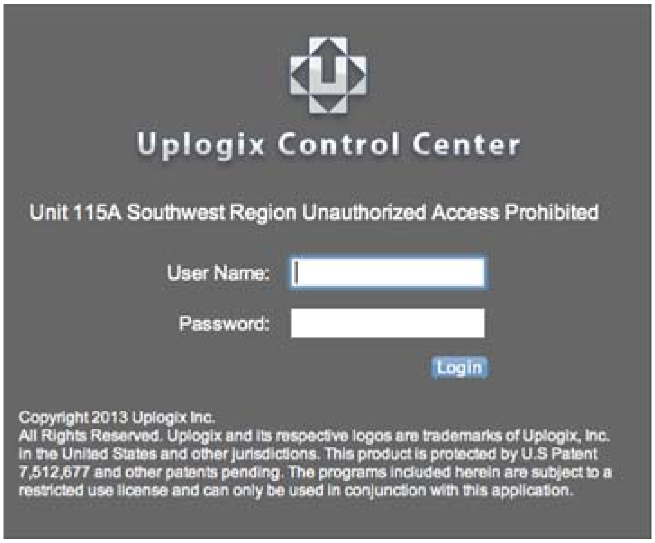
Install Information

IP: 203.0.113.6
Hostname ems13.uplogix
Version: 4.7
Build ID: 24370 (20131113:040416)
Install Date: Nov 26, 2013 11:06 PM
License Support: 10 systems, 0 virtual ports (In Use: 0)

Basic Settings

Login Banner:
```
Unit 115A
Southwest Region
Unauthorized Access Prohibited
```
Session Timeout: 30 minutes
Time Zone: (-6:00) US/Central
Use DST: ☑

Click **Save** and the new banner displays on the login screen.



Uplogix Control Center

Unit 115A Southwest Region Unauthorized Access Prohibited

User Name:

Password:

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## Setting the Web session timeout

By default, Control Center sessions time out after 30 minutes of inactivity. If this does not meet your organization's needs, change the value for Session timeout. You can set the timeout to any integer value from 5 to 1440 minutes (24 hours).

Once finished making changes, click **Save**.

The session timeout for Local Managers is set separately. To set the Local Manager timeout across the inventory or within an inventory group, see Creating default Local Manager settings. To set the timeout on individual Local Managers, see Configuring a Local Manager.

> If your session times out, you will be logged out but any operation in progress will not be affected. When you log in again, you are returned to the same page.

## Setting the time zone

Correct Control Center time is critical and should be provided by an NTP server. Set or change the IP address of the NTP server when running the setup script. See Provisioning.

### Daylight Saving Time adjustment

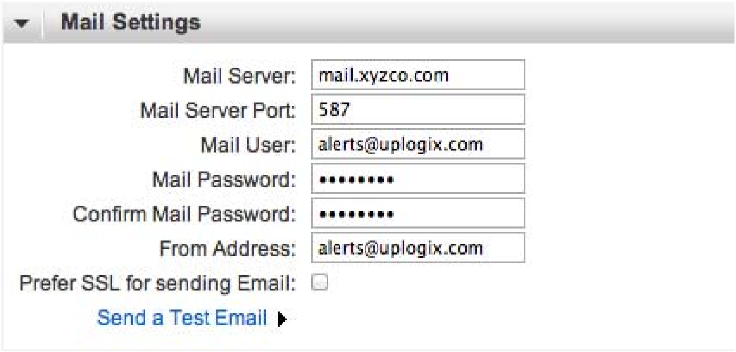
Although the Control Center uses UTC in timestamps for alerts and events, it can be set to show local time in generated reports. Select **Use DST** if you desire to adjust Daylight Saving time in reporting.

Once finished making changes, click **Save**.

## Configuring Mail Settings

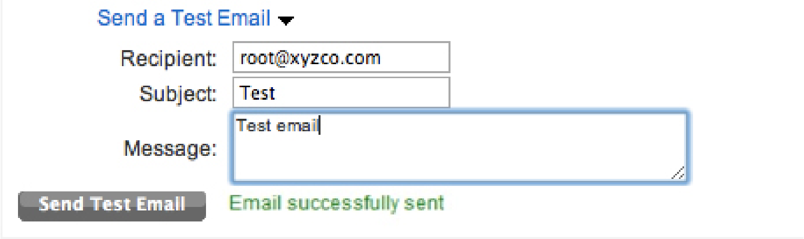
**Administration > Server settings > Mail Settings**

The Control Center can be configured to send alerts and reports by email. A mail server should be configured with a valid IP address and authentication settings. For more information, see Setting up email, auditing, and subscriptions.



Mail Server: mail.xyzco.com
Mail Server Port: 587
Mail User: alerts@uplogix.com
Mail Password: ••••••••
Confirm Mail Password: ••••••••
From Address: alerts@uplogix.com
Prefer SSL for sending Email: □

To verify the email settings are configured correctly, click **Send a Test Email** to open the test email form. At a minimum, provide a valid email address where the test message should be received. Click **Send Test Email** to send the message.



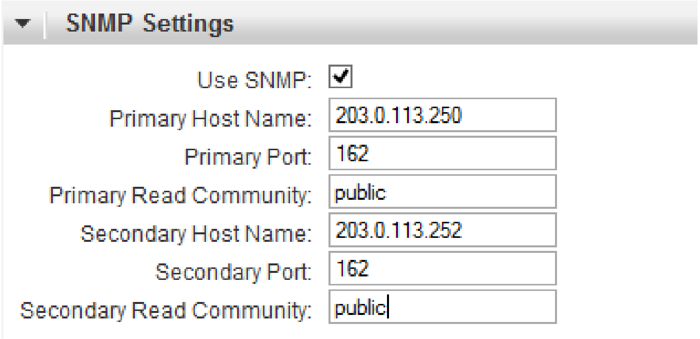
Recipient: root@xyzco.com
Subject: Test
Message: Test email
Email successfully sent

Once finished making changes, click **Save**.

## Configuring SNMP Settings

**Administration > Server settings > SNMP Settings**

During normal operation, the Control Center receives Alarm and Event information from managed Local Managers. If a third-party SNMP management tool has been set up to listen for SNMP traps, the Control Center can be configured to forward alarms and events it receives as SNMP traps. These SNMP traps will have the source IP address of the Local Manager the alarm or event came from. If a Management IP address is specified for a managed device, the source address for the trap will reflect it when an alarm is generated for the managed device.



Use SNMP: ☑
Primary Host Name: 203.0.113.250
Primary Port: 162
Primary Read Community: public
Secondary Host Name: 203.0.113.252
Secondary Port: 162
Secondary Read Community: public

Once finished making changes, click **Save**.

Traps will be sent for alarms and events for all Local Manager resources (system, modem, power controller and all serial ports) by default. You can indicate which resources should generate traps in the Trap section of the SNMP configuration page for an inventory group or for a Local Manager.

## Send Logs

**Administration > Server settings > Send Logs**

Users can send logs from the Control Center by entering a valid email address and clicking the Send Logs button.  These logs may be helpful to the Uplogix support team if they need to troubleshoot an issue with the Control Center.  To send logs to the Uplogix support team, enter the email address support@uplogix.com.

# Managing the deployment

The Control Center provides a central location for the configuration and monitoring of deployed Local Managers. This chapter describes the organization scheme, CLI to GUI relationships, and Local Manager specific data display.

The groups mentioned in this chapter are inventory groups, not user groups.

> For best results, Local Managers and the Control Center that manages them must use the same version of software.

This chapter covers:

- Inventory groups and inheritance—how changes propagate through the inventory
- Viewing the inventory—displaying only the information you need
- Organizing inventory groups—working with groups and moving Local Managers among them
- Working with the dashboard—keeping track of key information by groups of Local Managers
- Managing licenses—applying licenses you purchase

> For most of the tasks described in this chapter, a role on the Control Center that includes the config inventory privilege is required, such as the `admin` role. For more information, see Adding server privileges to accounts and Adding inventory privileges to accounts.

## About inventory groups and inheritance

Use the Control Center to manage Local Managers by group. Defining and applying user roles, rules, and tasks across large numbers of Local Managers in physically separate locations, reduces the need to repeat the same operations on each unit and the risk of introducing the variations that can occur during manual operations.

By grouping Local Managers, all members of any inventory group can be treated the same while each inventory group can be treated differently. Many of the tasks that the Control Center manages, such as assigning user roles and defining rules, can be performed at the root level or within any child group. All members of the inventory group and its child groups automatically inherit the newly created information.

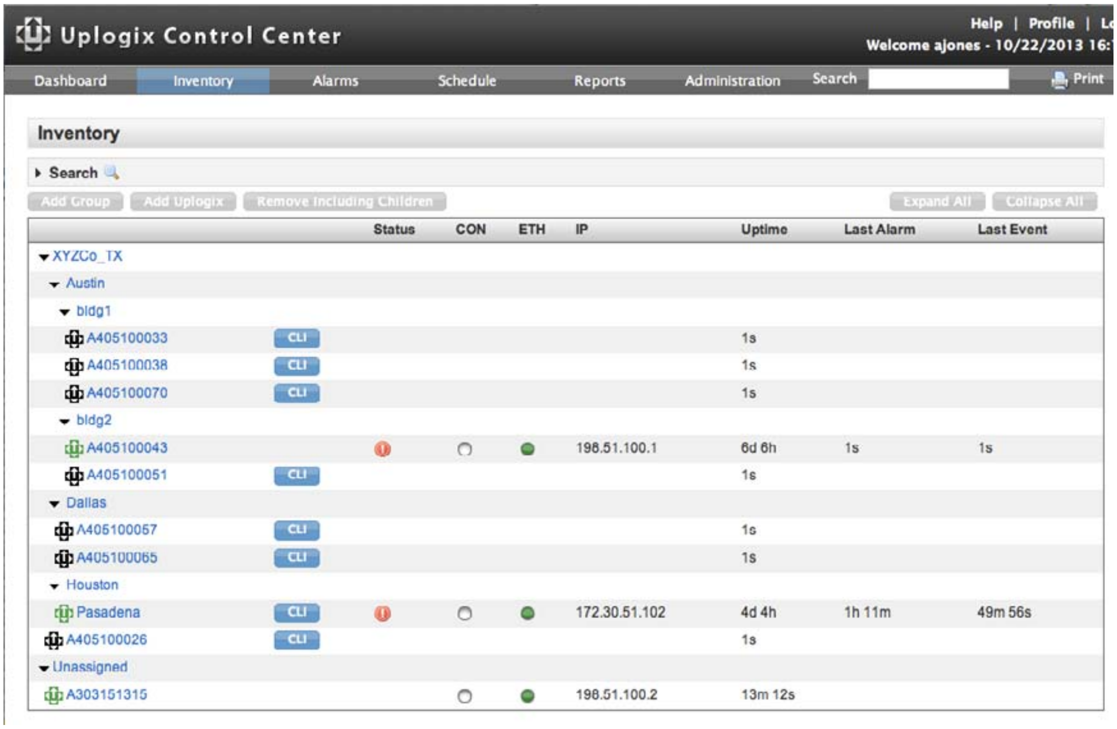
By default, the server provides the **Your Company** root group, which can be renamed, and the **Unassigned Group**, which is not editable. Neither of these can be deleted.

New inventory groups can be created within the root group. These child groups may also be nested. Groups may be based on any criteria that help organize your deployment. Local Managers can be reassigned from one group to another at any time.

In this example, the root group has been renamed **XYZCo_TX** and contains three inventory groups: Austin, Dallas, and Houston. The Austin inventory group contains two child groups of its own: bldg1 and bldg2.

Local Managers have been added to each of the inventory groups (Austin, Dallas, and Houston). In the case of the Austin inventory group, each Local Manager has been added to one of the two child groups within Austin. One Local Manager, xyzsa01, has been assigned directly to the root group.

The Unassigned group contains a Local Manager that has been configured to use this Control Center, but has not yet been assigned to an inventory group.



| | | Status | CON | ETH | IP | Uptime | Last Alarm | Last Event |
|---|---|---|---|---|---|---|---|---|
| XYZCo_TX | | | | | | | | |
| Austin | | | | | | | | |
| bldg1 | | | | | | | | |
| A405100033 | CLI | | | | | 1s | | |
| A405100038 | CLI | | | | | 1s | | |
| A405100070 | CLI | | | | | 1s | | |
| bldg2 | | | | | | | | |
| A405100043 | | ! | ○ | ● | 198.51.100.1 | 6d 6h | 1s | 1s |
| A405100051 | CLI | | | | | 1s | | |
| Dallas | | | | | | | | |
| A405100057 | CLI | | | | | 1s | | |
| A405100065 | CLI | | | | | 1s | | |
| Houston | | | | | | | | |
| Pasadena | CLI | ! | ○ | ● | 172.30.51.102 | 4d 4h | 1h 11m | 49m 56s |
| A405100026 | CLI | | | | | 1s | | |
| Unassigned | | | | | | | | |
| A303151315 | | | ○ | ● | 198.51.100.2 | 13m 12s | | |

A collection of default port settings for Cisco model 3925 within the Austin inventory group of XYZCo_TX can be created. All Local Managers within the Austin inventory group and all child groups inherit these default port settings.

If a Local Manager is added to the bldg2 group, it inherits the Cisco 3925 default port settings from the Austin group. Similarly, if a child group is added to the bldg2 group, it also inherits the Cisco 3925 default port settings from its parent group.

If a child group, such as bldg1, already has Cisco 3925 default port settings before the Cisco 3925 settings are created in the Austin group, the child group retains its original Cisco 3925 default port settings by default. You can choose to overwrite existing settings in child groups.

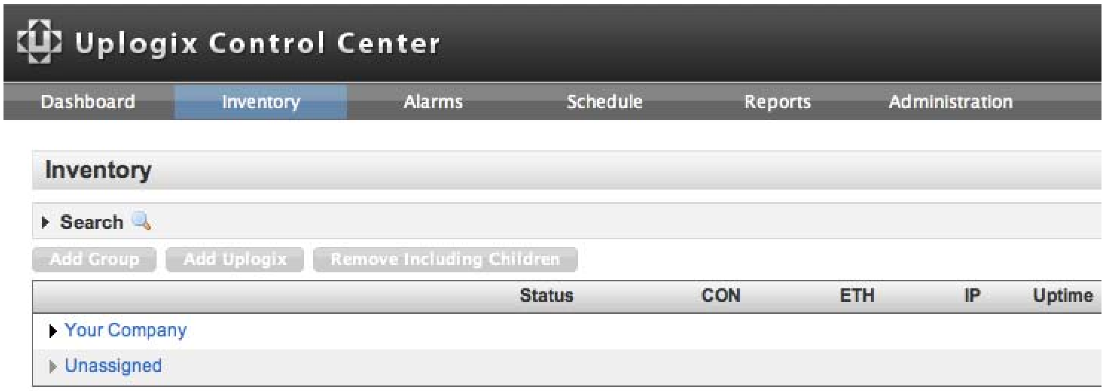
Local Managers within the Unassigned group do not inherit any settings; they are outside the inventory's root group.

If default settings are deleted from a group, child groups retain the settings.

## Viewing the inventory

**Inventory**

To view an expandable tree view of inventory, select the Inventory tab.



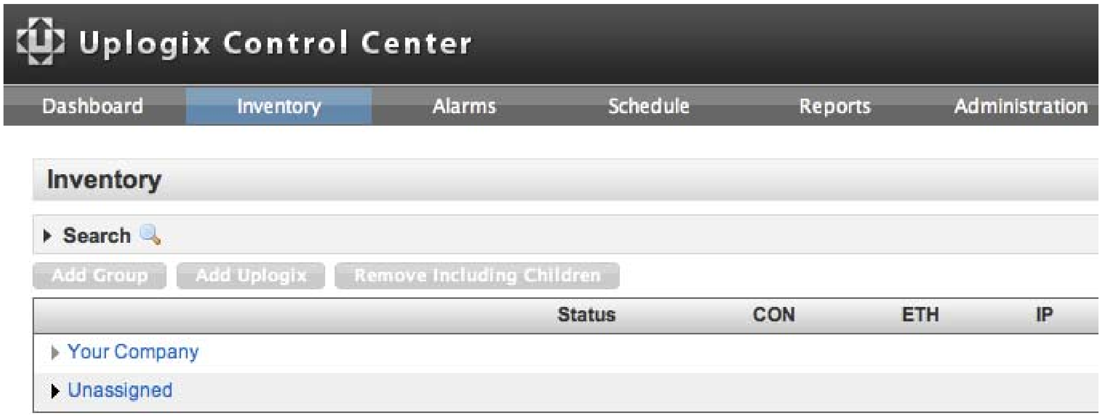
- The current organization of your deployment is shown, including inventory groups and individual Local Managers. Initially, the Inventory list shows only the two default groups, Your Company and Unassigned.
- The inventory is sorted alphabetically.
- To search for a specific Local Manager, enter its hostname in the search box at the top of the inventory pane.
- To view the contents of an inventory group, click the expand icon ▸ to the left of the inventory group name.
- To view the group details, click the group name and the group detail page displays.
  - All functions concerning inventory groups can be accessed from the group detail page
  - A gray icon indicates the group is empty.

The icons beside each entry denote status or other information.

| Icon | Description |
|---|---|
| ▸ | Inventory group is collapsed.<br>• Black arrow indicates the group contains at least one Local Manager or child group.<br>• Gray indicates the group is empty. |
| ▾ | Inventory group is expanded, listing the Local Managers and child groups. |
| 🟩 | The Local Manager has communicated within the past four heartbeat intervals. The default interval is 30 seconds. |
| ⬜ | No communication has been received from this Local Manager within the past four heartbeat intervals. |
| 🟨 | This unit is communicating in minimal heartbeat mode. Commonly indicating local managers using an older version of Local Manager software. |
| 🟧 | This unit is communicating over the Outband (out-of-band) connection. |
| ⬛ | The unit has been manually added (pre-provisioned) to the inventory, but has not yet contacted the server. |

## Organizing inventory groups

Use the Inventory tab to organize and manage Local Managers by inventory group.



| | Status | CON | ETH | IP |
|---|---|---|---|---|
| ▸ Your Company | | | | |
| ▸ Unassigned | | | | |

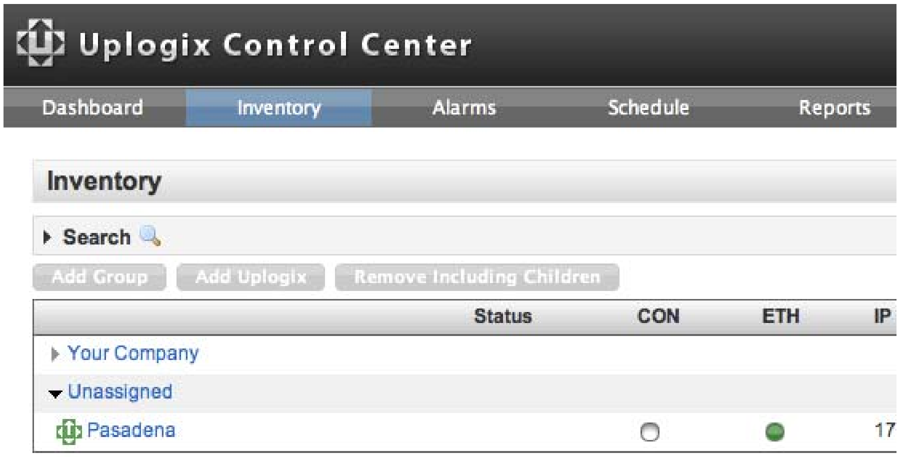
- Most management operations occur at the group level.
- To view the group details, click the group name and the group detail page displays.
  - All functions concerning inventory groups can be accessed from the group detail page
  - A gray icon indicates the group is empty.
- Inventory groups are always visible regardless of your privilege settings.

This section covers:

- About the Unassigned group
- Editing an inventory group
- Adding an inventory group
- Reassigning an inventory group
- Deleting an inventory group
- Adding a Local Manager
- Reassigning a Local Manager
- Removing a Local Manager

## About the Unassigned group

Executing the `config system management` command on a Local Manager places it under management by a Control Center. The Local Manager is then placed in the Unassigned group on the Control Center, unless you have already created a placeholder for it in another group. See Adding a Local Manager.



| | Status | CON | ETH | IP |
|---|---|---|---|---|
| Your Company | | | | |
| Unassigned | | | | |
| Pasadena | | ○ | ● | 17 |

Unlike other inventory groups, the Unassigned group does not provide management capabilities. To manage a Local Manager, it must be reassigned from Unassigned to another inventory group. See Reassigning a Local Manager.

The Unassigned group cannot be deleted or edited and Local Managers cannot be reassigned to it.

To place a Local Manager in the Unassigned group, delete it from another inventory group. At the next heartbeat, the Local Manager appears in the Unassigned group.

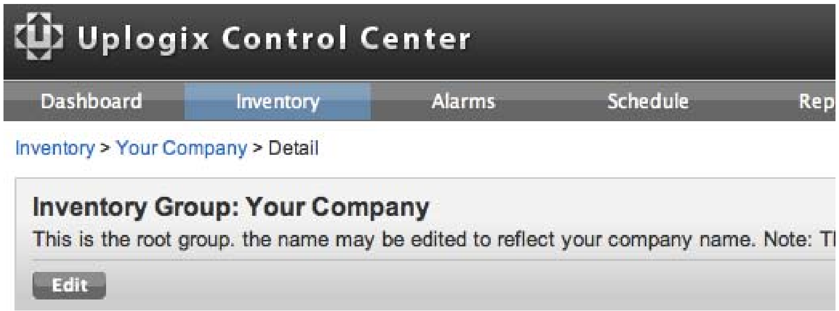
## Editing an inventory group

**Inventory > Group**

The name and description of the root group and any inventory group you add can be edited. Changes to the name or description affect only the selected inventory group. Child groups or Local Managers within the inventory group are not affected.

To edit an inventory group name:

1. Click **Edit** on the Group Detail page.

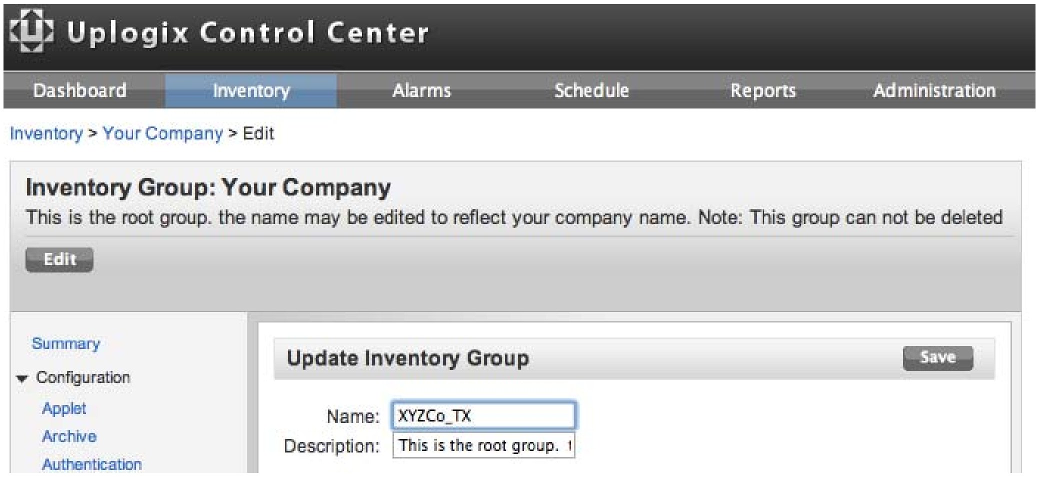


Inventory > Your Company > Detail

**Inventory Group: Your Company**

This is the root group. the name may be edited to reflect your company name. Note: Tl

2. Edit the Name or Description as needed.
   - Name is required.
   - Description is optional.



Inventory > Your Company > Edit

**Inventory Group: Your Company**

This is the root group. the name may be edited to reflect your company name. Note: This group can not be deleted

**Update Inventory Group**

Name: XYZCo_TX

Description: This is the root group. 1

3. Click **Save**.

> Use only printing characters when completing text fields. Spaces are considered printing characters.

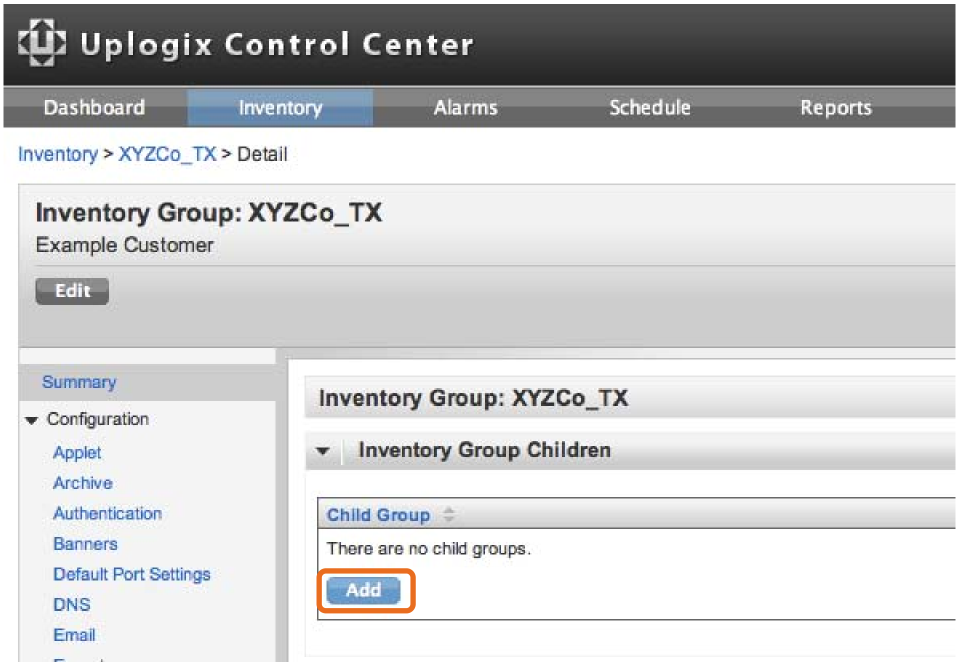
## Adding an inventory group

**Inventory > Group**

Groups cannot be added to the Unassigned group.

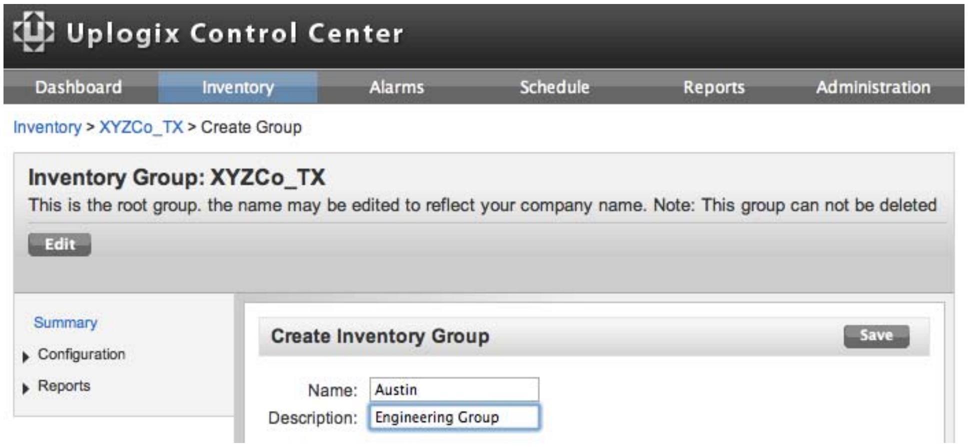
To add an inventory group:

1. Navigate to the group in which a new child group is to be added.
2. Click **Add** in the Child Group area, the Create Group page displays.



There are no child groups.

3. Enter a Name and optionally, a Description of the new inventory group.
   - Name is required and must be unique within the entire inventory hierarchy.
   - Description is optional.



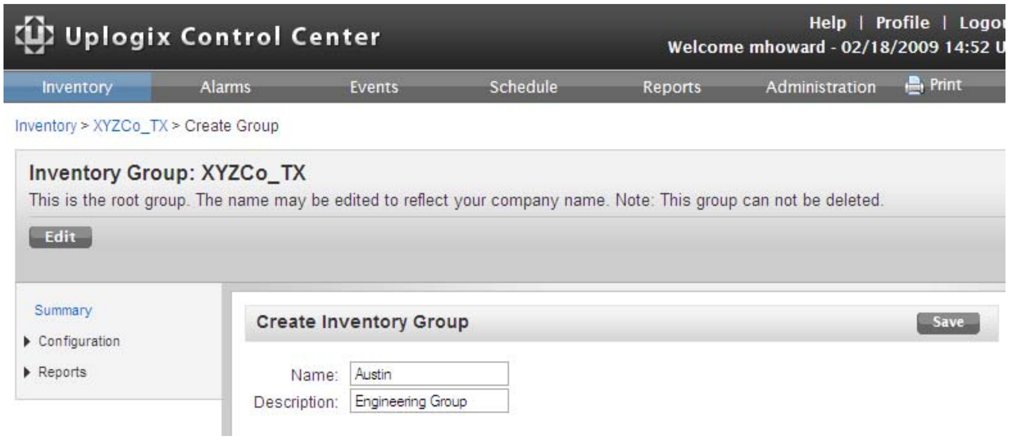
This is the root group. the name may be edited to reflect your company name. Note: This group can not be deleted

Name: Austin
Description: Engineering Group

An inventory group name cannot be duplicated at a different level or within a different parent group.

Use only printing characters when completing text fields. Spaces are considered printing characters.

4. Click **Save**. The inventory list and detail is automatically refreshed. If the parent group was previously empty, its expand/collapse arrow changes from gray to black in the inventory tree view.



Welcome mhoward - 02/18/2009 14:52 U

Inventory Group: XYZCo_TX

This is the root group. The name may be edited to reflect your company name. Note: This group can not be deleted.

Name: Austin

Description: Engineering Group

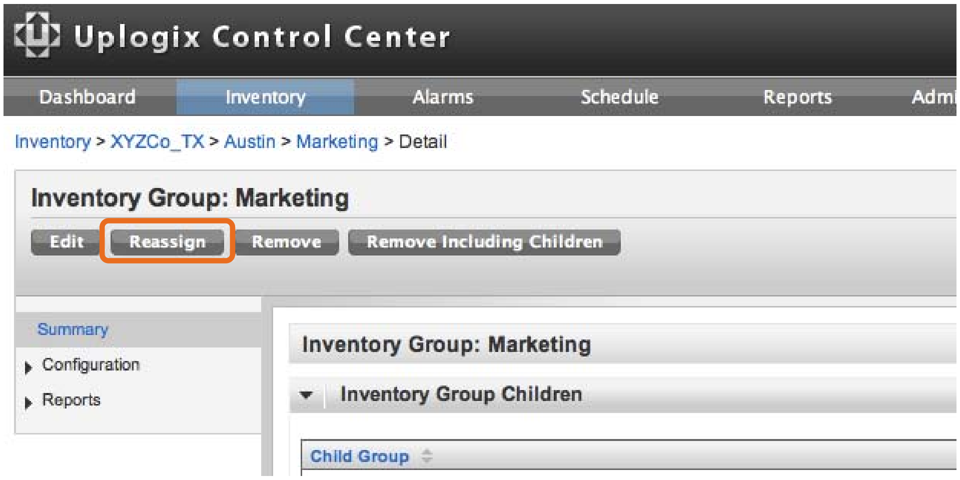
## Reassigning an inventory group

**Inventory > Group**

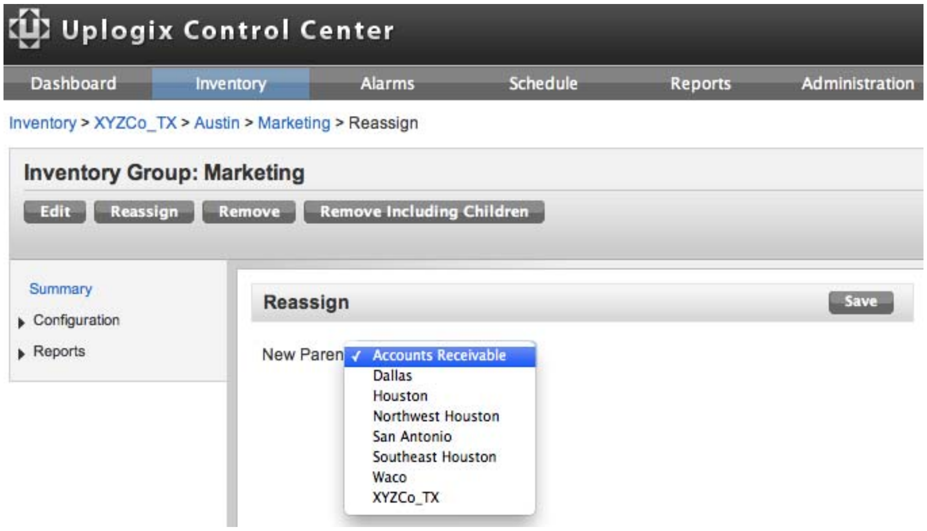
All groups, with the exception of the root and Unassigned groups, can be moved to another parent. Reassignment includes all of the child groups and Local Managers assigned to the inventory group.

To reassign an inventory group:

1. Click **Reassign** on the Group Detail page, the Reassign page displays.



2. The **New Parent** list displays any available inventory groups. Only the current parent and Unassigned group are not shown. Select the new parent from the menu.



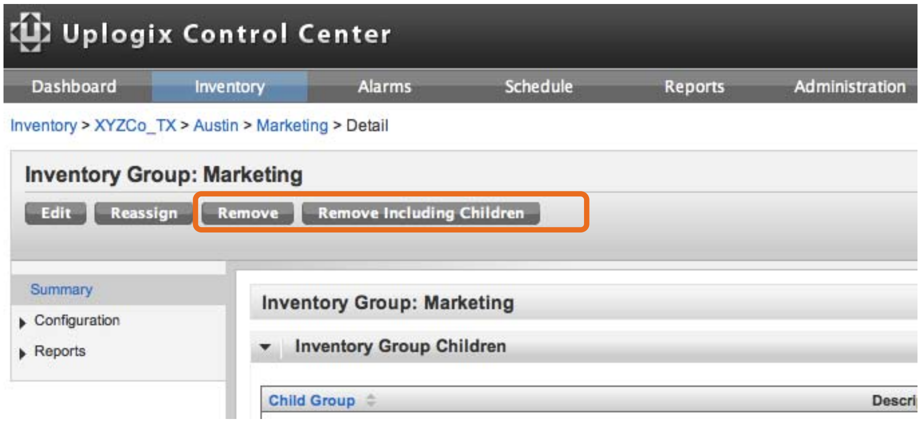
3. Click **Save**. The inventory list is automatically refreshed and displays the new location of the inventory group.

## Deleting an inventory group

**Inventory > Group**

An inventory group can be deleted from the Control Center using one of the following methods:

- Click **Remove** to move all the child groups and Local Managers into the parent group prior to deletion. For example, clicking Remove on the screen below would move all the members of the Marketing inventory group into the Austin group before Marketing would be deleted.



- Click **Remove Including Children** to delete the group and its child groups. For example, clicking Remove Including Children on the screen above would delete the Marketing inventory group, any child groups, and any Local Managers assigned to the Marketing inventory group. Deleted Local Managers return to the Unassigned group when they re-establish contact with the server at the next heartbeat.

**Caution:** There is no delete confirmation.

## Adding a Local Manager

A management relationship must be established before the Control Center can manage a Local Manager.

A placeholder can be set up for the Local Manager beforehand, so the Local Manager is automatically added to the appropriate group when it contacts the server.

> If user accounts have been created on the Local Manager, they are deleted when the Control Center adds the Local Manager to its inventory.

### Creating a placeholder on the Control Center (optional)

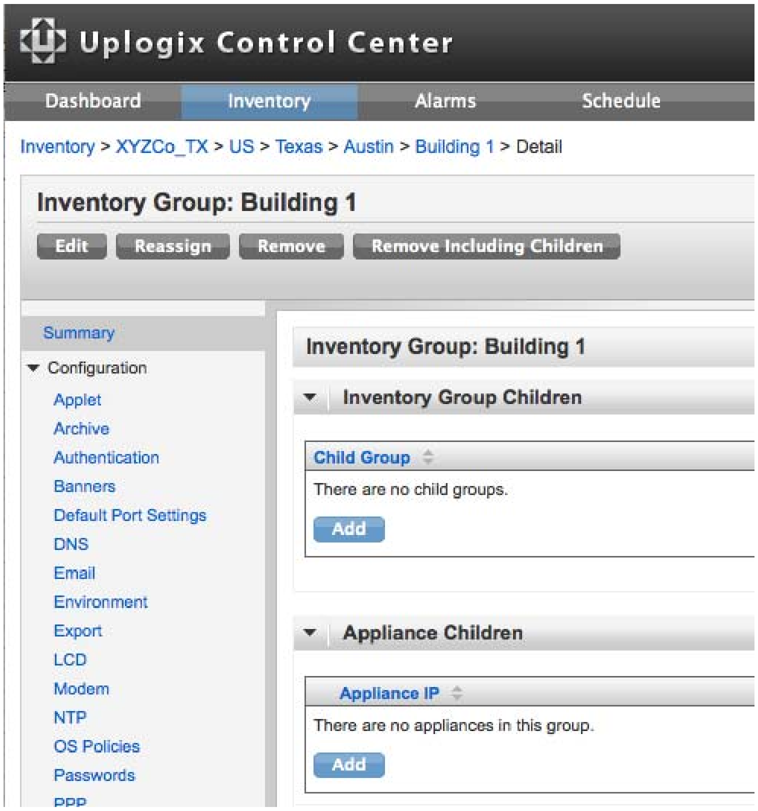
**Inventory > Group**

Create a placeholder in advance to add the Local Manager directly to the inventory group of your choice. Users with the appropriate privileges within that group can manage the Local Manager as soon as it contacts the Control Center. The Local Manager also inherits the configuration settings, privileges, roles, rules, preferences, and other defaults from that inventory group.

This step can be performed before the Local Manager is physically installed.

To create a placeholder in advance:

1. Obtain the serial number of the Local Manager to be added. Find this number by issuing the `show version` command from the Local Manager's command line or by referencing the plate on the bottom of the 430 or 3200 Local Manager or the back of the 500 or 5000 Local Manager.
2. Select a group from the inventory list and the Group Detail page displays.

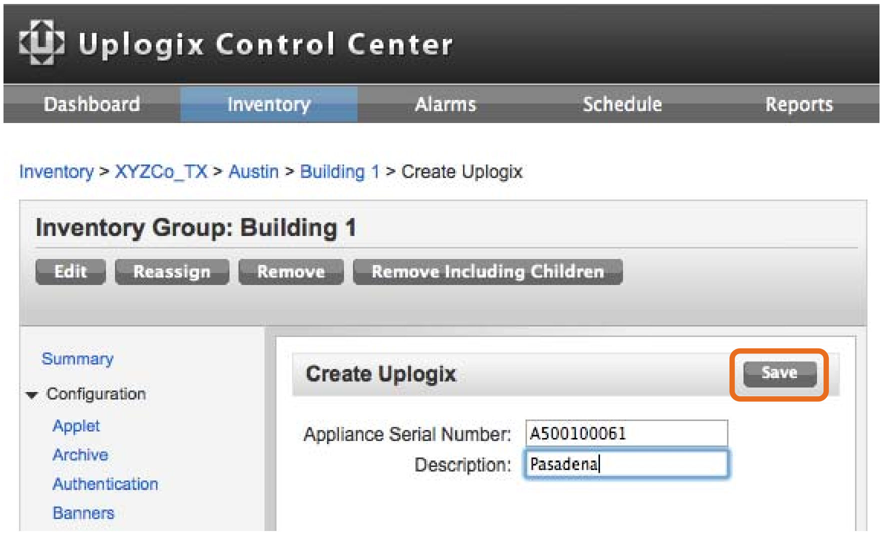


There are no child groups.

There are no appliances in this group.

3. Click **Add** in the ‘Appliance Children’ section.

4. Enter the serial number of the Local Manager and optionally, a description.

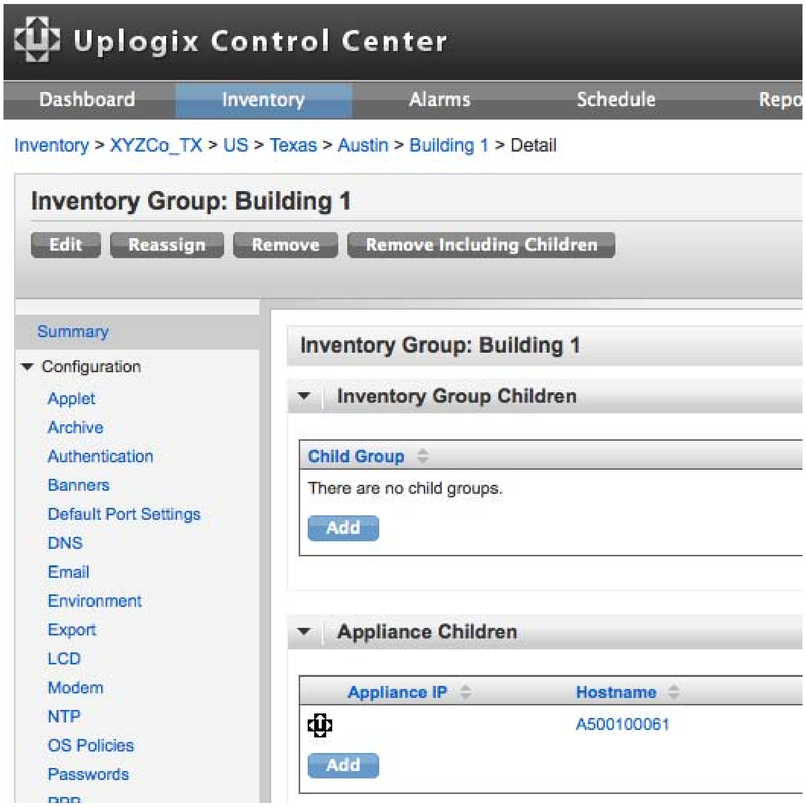


Appliance Serial Number: A500100061

Description: Pasadena

Use only printing characters when completing text fields. Spaces are considered printing characters.

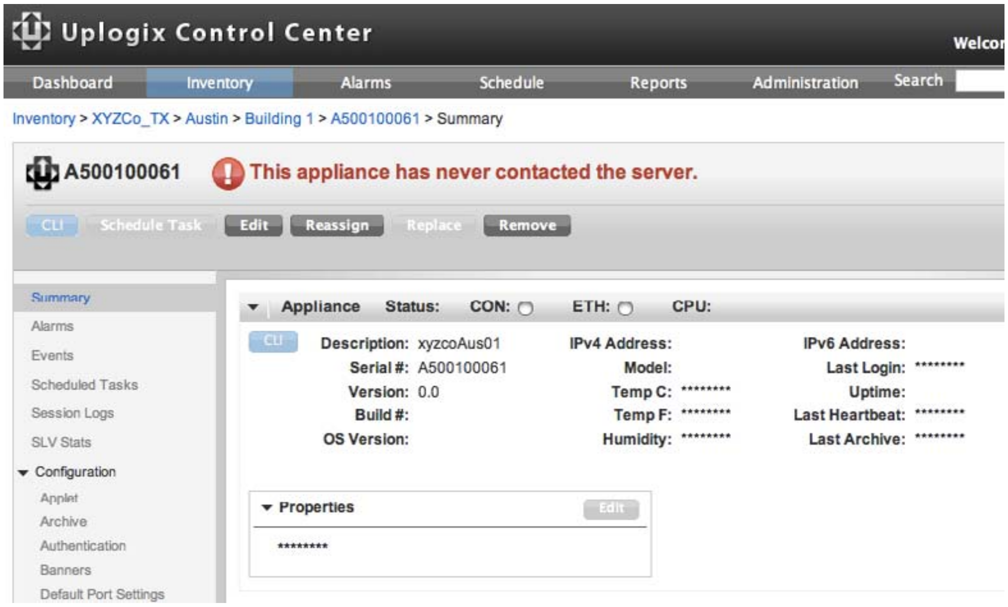
5. Click **Save** to add a placeholder for the Local Manager. The Group detail page is automatically refreshed and displays the Local Manager.



There are no child groups.

| Appliance IP | Hostname |
|---|---|
| | A500100061 |

6. If the Local Manager is selected to view the detail page, its symbol appears in black. This is because there is no communication between the server and the Local Manager at this point.



A500100061 This appliance has never contacted the server.

Appliance Status: CON: ○ ETH: ○ CPU:

| | | | | | |
|---|---|---|---|---|---|
| Description: | xyzcoAus01 | IPv4 Address: | | IPv6 Address: | |
| Serial #: | A500100061 | Model: | | Last Login: | ******** |
| Version: | 0.0 | Temp C: | ******** | Uptime: | |
| Build #: | | Temp F: | ******** | Last Heartbeat: | ******** |
| OS Version: | | Humidity: | ******** | Last Archive: | ******** |

Properties

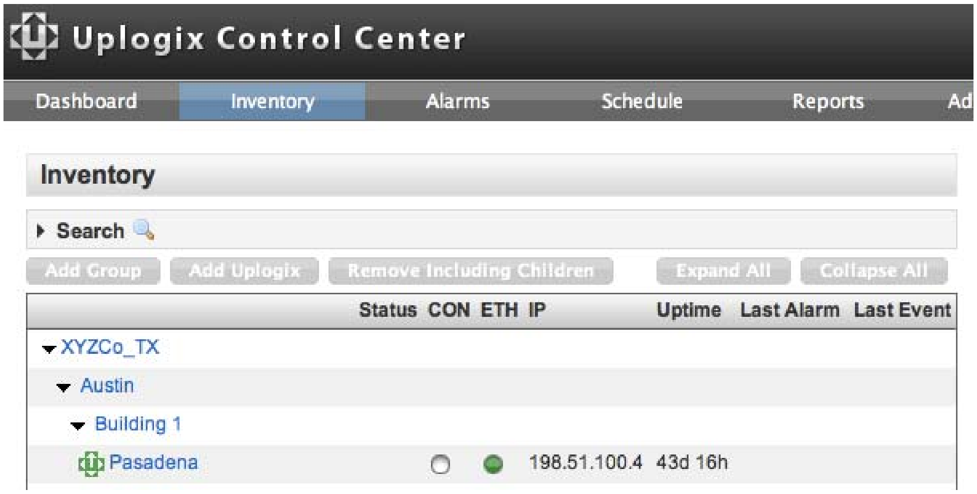
********

## Configure the Local Manager to use the Control Center (required)

From the Local Manager's command line interface, issue the `config system management` command. Use the IP address of your Control Center in place of the IP address shown in the following example:

```
[admin@pasadena]# config system management
--- Existing  Values ---
Use Management Server: false
Server Hostname or IP: 127.0.0.1
Server Port: 8443
Heartbeat interval (seconds): 30
Heartbeat Band: all
Always use minimal heartbeat: false (may only be configured on UCC)
Last successful heartbeat:  (not yet contacted)
Change these? (y/n) [n]: y
--- Enter New Values ---
Use Management Server: (y/n) [n]: y
Server Hostname or IP: [127.0.0.1]: 192.0.2.11
Server Port: [8443]:
Set ntp location to 192.0.2.11: (y/n) [y]:
Heartbeat interval (seconds): [30]:
Heartbeat Band: all
Do you want to commit these changes? (y/n): y
Enabling NTP to point to 192.0.2.11
```

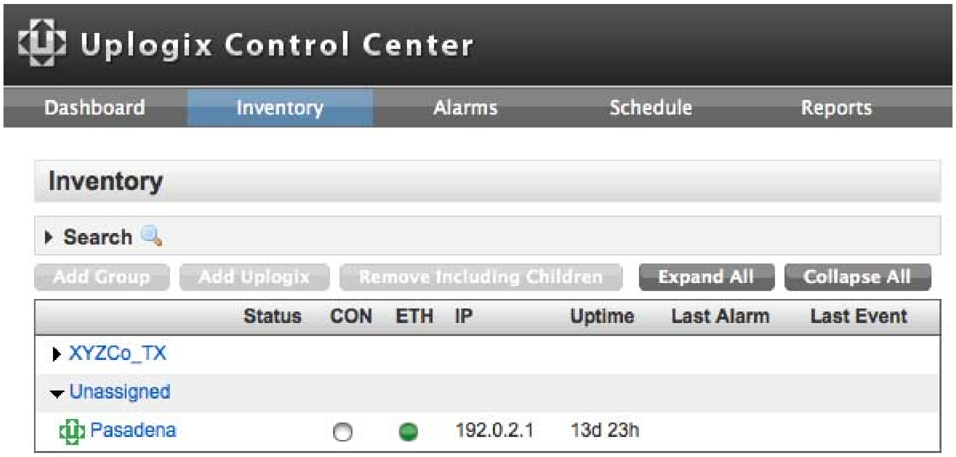
If a placeholder has already been set up in the inventory, once the Local Manager executes a full Heartbeat the black icon for the placeholder turns green and the serial number is replaced by the hostname of the Local Manager (if one has been configured on the Local Manager). The default heartbeat interval is 30 seconds.



Inventory

| | Status | CON | ETH | IP | Uptime | Last Alarm | Last Event |
|---|---|---|---|---|---|---|---|
| XYZCo_TX | | | | | | | |
| Austin | | | | | | | |
| Building 1 | | | | | | | |
| Pasadena | | ○ | ● | 198.51.100.4 | 43d 16h | | |

If a placeholder has not already been set up in the inventory, the Local Manager is placed in the Unassigned group.



Inventory

| | Status | CON | ETH | IP | Uptime | Last Alarm | Last Event |
|---|---|---|---|---|---|---|---|
| XYZCo_TX | | | | | | | |
| Unassigned | | | | | | | |
| Pasadena | | ○ | ● | 192.0.2.1 | 13d 23h | | |

The Local Manager cannot be managed while in the Unassigned group. It must first be reassigned to another inventory group. See Reassigning a Local Manager.

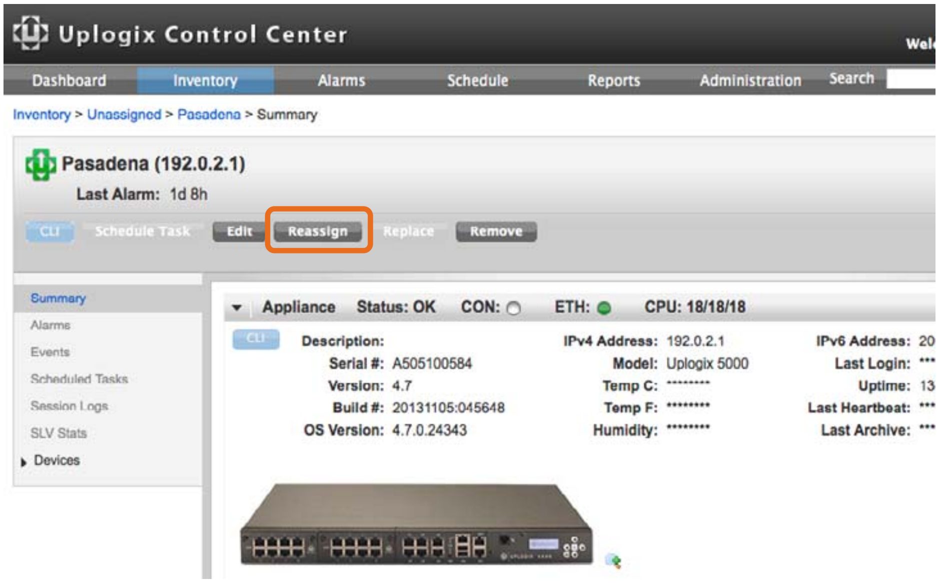
## Reassigning a Local Manager

**Inventory > Local Manager Page**

A Local Manager can be reassigned from the Unassigned group to another inventory group. Remember that a Local Manager in the Unassigned group cannot be managed.

To reassign a local manager:

1. Select the Local Manager from the inventory list.
2. Click **Reassign** from its detail page.



Inventory > Unassigned > Pasadena > Summary

Pasadena (192.0.2.1)

Last Alarm: 1d 8h

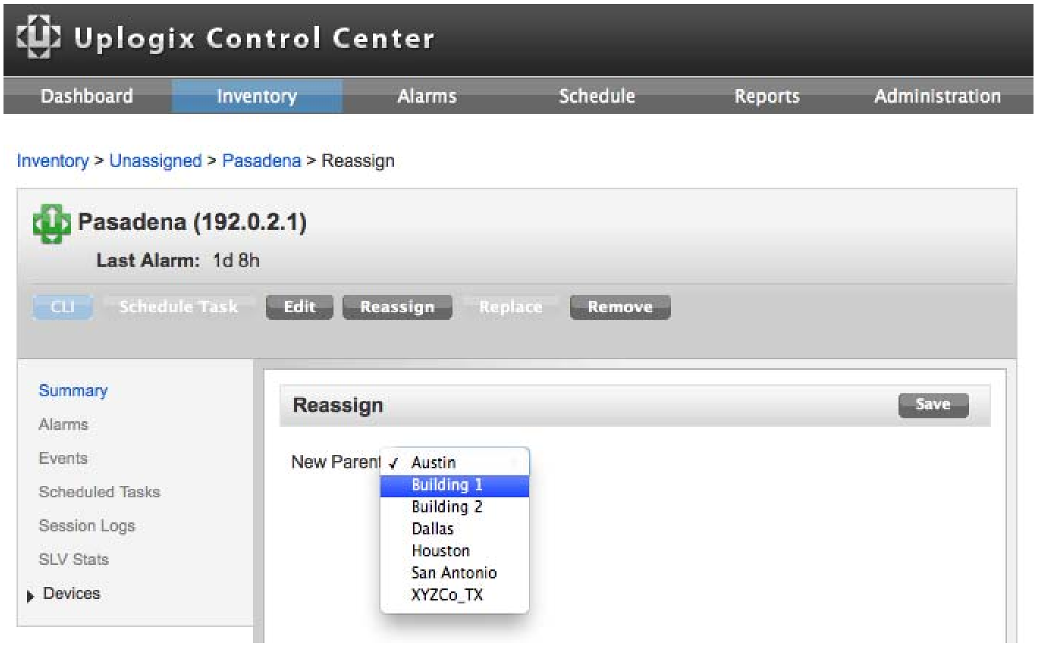
Appliance Status: OK CON: ○ ETH: ● CPU: 18/18/18

Description:
Serial #: A505100584
Version: 4.7
Build #: 20131105:045648
OS Version: 4.7.0.24343

IPv4 Address: 192.0.2.1
Model: Uplogix 5000
Temp C: ********
Temp F: ********
Humidity: ********

IPv6 Address: 20
Last Login: ***
Uptime: 13
Last Heartbeat: ***
Last Archive: ***

3. Available inventory groups are shown in the New Parent list. The only groups not shown are the current parent and the Unassigned group.



Inventory > Unassigned > Pasadena > Reassign

Pasadena (192.0.2.1)

Last Alarm: 1d 8h

Reassign

New Parent ✓ Austin
Building 1
Building 2
Dallas
Houston
San Antonio
XYZCo_TX

4. Select the new parent group and click **Save**. The Local Manager appears in the appropriate group of the inventory list.

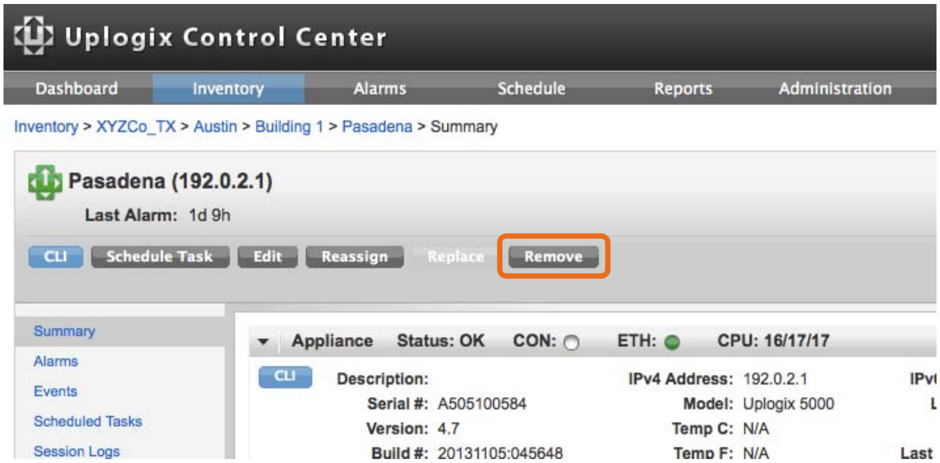
While there is no function for moving a Local Manager into the Unassigned group, this can be done by deleting the Local Manager. If it is still configured to use the Control Center, it will reconnect on the next heartbeat and will then be placed in the Unassigned group.

## Removing a Local Manager

**Inventory > Local Manager Page**

A Local Manager can be removed from the inventory. To remove a Local Manager from inventory:

1. Click **Remove** from the Local Manager page.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > Summary

Pasadena (192.0.2.1)

Last Alarm: 1d 9h

Appliance Status: OK CON: ○ ETH: ● CPU: 16/17/17

Description:
Serial #: A505100584
Version: 4.7
Build #: 20131105:045648

IPv4 Address: 192.0.2.1
Model: Uplogix 5000
Temp C: N/A
Temp F: N/A

IPv
L
Last

2. Most of the information about the Local Manager remains in the database. If the Local Manager subsequently contacts the server, it is placed in the Unassigned group. This happens if the Local Manager remains connected and configured to use the Control Center.

3. To set the Local Manager to operate without management by the Control Center, log into the Local Manager and issue the `config system management` command:

```
[admin@xyzcoAus01]# config system management
--- Existing  Values ---
Use Management Server: true
Server Hostname or IP: 192.0.2.11
Server Port: 8443
Heartbeat interval (seconds): 30
Heartbeat Band: all
Last successful heartbeat: 07/03/2013 19:54:09 UTC (Full)
Change these? (y/n) [n]: y
--- Enter New Values ---
Use Management Server: (y/n) [y]: n
Disable NTP also? (y/n) [y]: y
Do you want to commit these changes? (y/n): y
```

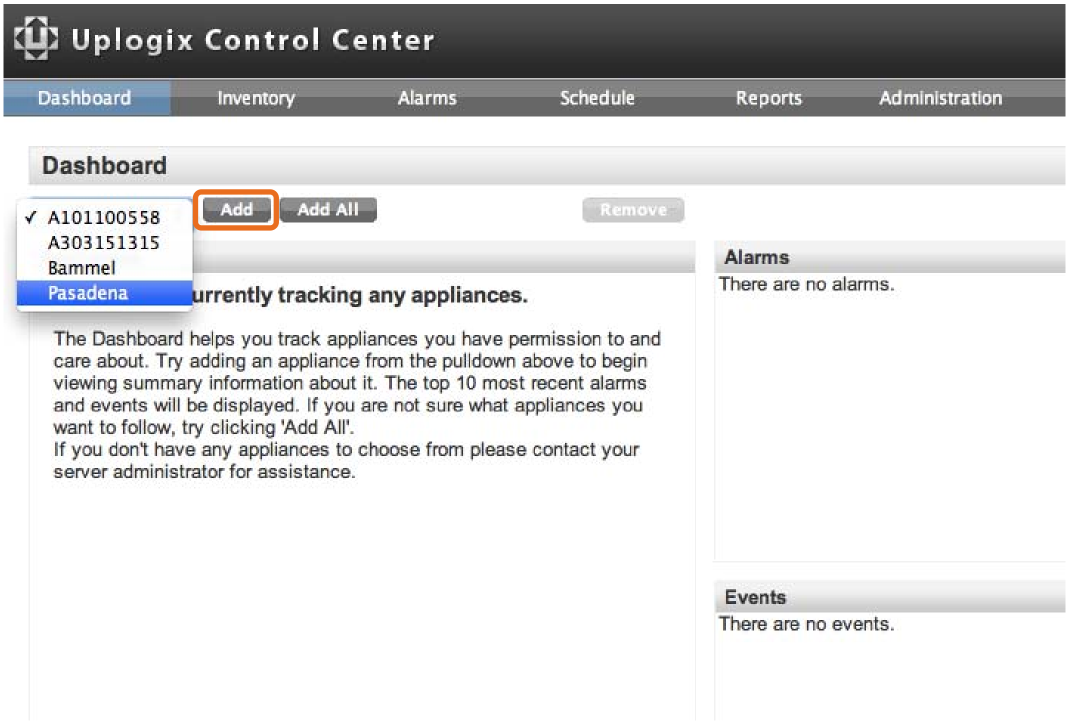
4. You can also do this by selecting **Server** from the Configuration tab.

## Working with the dashboard

**Dashboard**

The Dashboard helps keeps track of key information for a selected group of Local Managers. The summary information of the selected Local Managers, as well as their ten most recent alarms and events, is displayed. The dashboard can also provide information to users with limited access to the Uplogix deployment.

To add a Local Manager to the dashboard, select the hostname from the dropdown menu and click **Add**.



urrently tracking any appliances.

The Dashboard helps you track appliances you have permission to and care about. Try adding an appliance from the pulldown above to begin viewing summary information about it. The top 10 most recent alarms and events will be displayed. If you are not sure what appliances you want to follow, try clicking 'Add All'.
If you don't have any appliances to choose from please contact your server administrator for assistance.

There are no alarms.

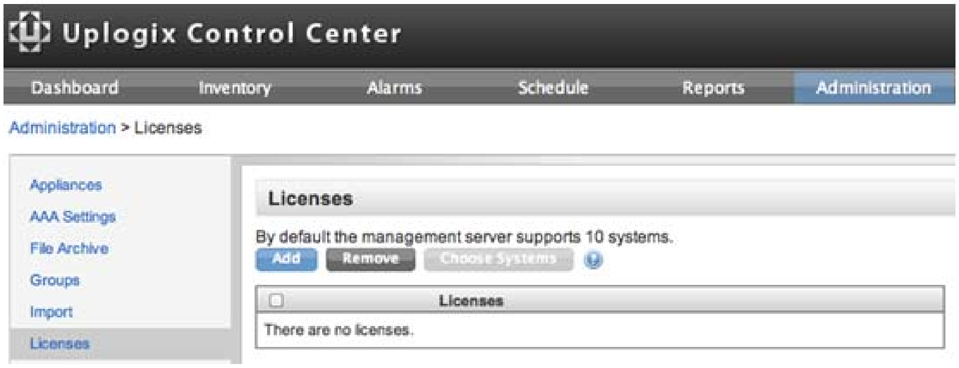
There are no events.

Available Local Managers are limited to ones you have permission to view. If no Local Managers appear in the selection menu, contact your server administrator for assistance.

## Managing licenses

**Administration > Licenses**

Each Control Center is initially configured to support a maximum of ten Local Managers. By purchasing additional licenses, more management capability and advanced functionality can be added to the Control Center.



Licenses

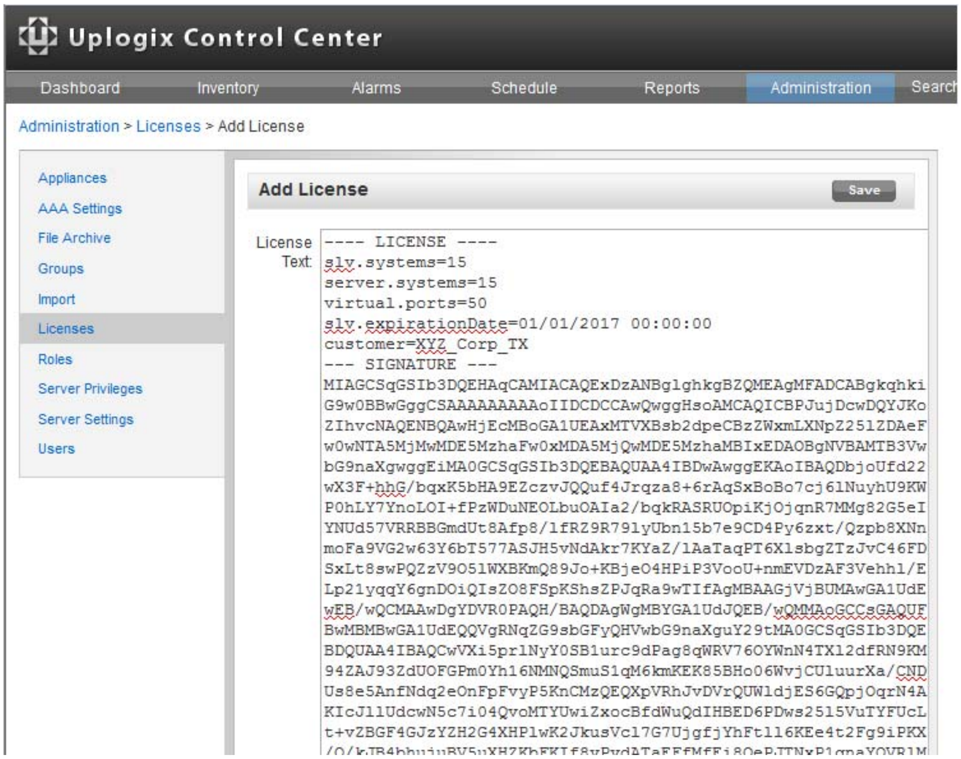
By default the management server supports 10 systems.

| ☐ | Licenses |
|---|---|
| There are no licenses. | |

Control Center licenses:

- specify the maximum number of managed Local Managers which limits the number of units that can be moved from the Unassigned group.
- may include Service Level Verification (SLV) features which specify the number of Local Managers on which SLV can be enabled.
- may include virtual port features which specify the number of virtual ports that can be created on Local Managers throughout the deployment.
- are not cumulative. The most recent license takes precedence if multiple licenses are present.

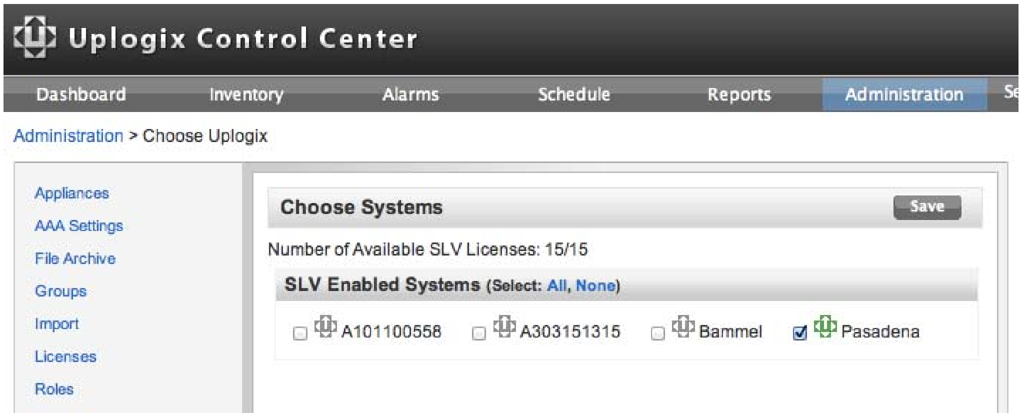
To apply a license, copy and paste the license text and click **Save**.



License Text:

```
---- LICENSE ----
slv.systems=15
server.systems=15
virtual.ports=50
slv.expirationDate=01/01/2017 00:00:00
customer=XYZ_Corp_TX
--- SIGNATURE ---
MIAGCSqGSIb3DQEHAqCAMIACAQExDzANBglghkgBZQMEAgMFADCABgkqhki
G9w0BBwGggCSAAAAAAAAAoIIDCDCCAwQwggHsoAMCAQICBPJujDcwDQYJKo
ZIhvcNAQENBQAwHjEcMBoGA1UEAxMTVXBsb2dpeCBzZWxmLXNpZ25lZDAeF
w0wNTA5MjMwMDE5MzhaFw0xMDA5MjQwMDE5MzhaMBIxEDAOBgNVBAMTB3Vw
bG9naXgwggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQDbjoUfd22
wX3F+hhG/bqxK5bHA9EZczvJQQuf4Jrqza8+6rAqSxBoBo7cj61NuyhU9KW
P0hLY7YnoLOI+fPzWDuNEOLbuOAIa2/bqkRASRUOpiKjOjqnR7MMg82G5eI
YNUd57VRRBBGmdUt8Afp8/1fRZ9R791yUbn15b7e9CD4Py6zxt/Qzpb8XNn
moFa9VG2w63Y6bT577ASJH5vNdAkr7KYaZ/1AaTaqPT6X1sbgZTzJvC46FD
SxLt8swPQZzV9O51WXBKmQ89Jo+KBjeO4HPiP3VooU+nmEVDzAF3Vehhl/E
Lp21yqqY6gnDOiQIsZO8FSpKShsZPJqRa9wTIfAgMBAAGjVjBUMAwGA1UdE
wEB/wQCMAAwDgYDVR0PAQH/BAQDAgWgMBYGA1UdJQEB/wQMMAoGCCsGAQUF
BwMBMBwGA1UdEQQVgRNqZG9sbGFyQHVwbG9naXguY29tMA0GCSqGSIb3DQE
BDQUAA4IBAQCwVXi5prlNyY0SB1urc9dPag8qWRV76OYWnN4TX12dfRN9KM
94ZAJ93ZdUOFGPm0Yh16NMNQSmuS1qM6kmKEK85BHo06WvjCUluurXa/CND
Us8e5AnfNdq2eOnFpFvyP5KnCMzQEQXpVRhJvDVrQUWldjES6GQpjOqrN4A
KIcJl1UdcwN5c7i04QvoMTYUwiZxocBfdWuQdIHBED6PDws2515VuTYFUcL
t+vZBGF4GJzYZH2G4XHPlwK2JkusVcl7G7UjgfjYhFtl16KEe4t2Fg9iPKX
/O/kJB4bhuiuBV5uXHZKbFKIf8vPvdATaFEfMfFi8OePJTNxP1gnaYOVR1M
```

If the license includes SLV information, the **Choose Systems** link becomes active. Click the link to apply the SLV license to specific Local Managers. SLV configuration options are available only for the specific Local Managers to which the license is applied.



**Choose Systems**

Number of Available SLV Licenses: 15/15

**SLV Enabled Systems** (Select: All, None)

□ A101100558 □ A303151315 □ Bammel ☑ Pasadena

# Managing the equipment

The Control Center provides the ability to manage equipment at the group level. Individual Local Managers and ports can also be managed.

This chapter covers:

- Managing from the Local Manager detail page—work with the dashboard view of a Local Manager and the devices it manages
- Configuring a Local Manager—access the functionality offered by the `config system` commands
- Creating default Local Manager settings—automate configuration of newly added Local Managers
- Creating default port settings—automate configuration of devices on Local Managers
- Managing from the port detail pages—detailed information about devices; access to the device CLI
- Configuring virtual ports—configure the Local Manager to use virtual device management ports
- Creating categories for managing devices—creating and applying port labels
- Managing scheduled tasks—create filters to schedule tasks for specific Local Managers or managed devices
- Managing rules and monitors—automate performance assessment, diagnosis, and recovery
- Creating standard operating system policies—define an operating system standard for managed devices on a per make/model basis
- Establishing contact with a Local Manager via the Dial button—contact remote Local Managers via dial button

To complete the tasks described in this chapter, a role with the appropriate permissions assigned at a suitable level within the inventory or a role on the Control Center that includes the config inventory privilege (such as the admin role) is required. For more information, see Adding server privileges to accounts and Adding inventory privileges to accounts.

## Managing from the Local Manager Detail page

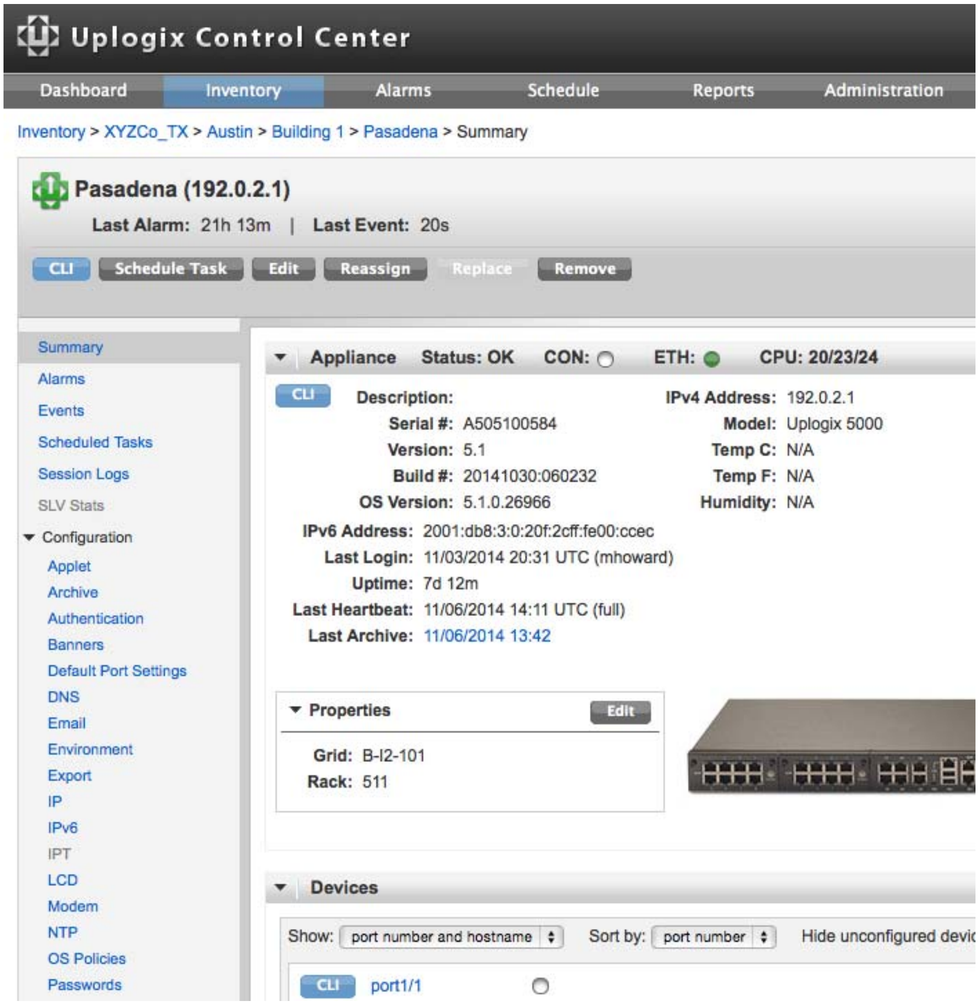
**Inventory > Local Manager Page**

From the Inventory list, or any screen where a given Local Manager is listed, click the hostname to view its detail screen. A quick view of the Local Manager and the devices connected to it appears. The equivalent Uplogix LMS CLI command is `show dashboard`. The Local Manager detail page displays the information being collected from the Local Manager.

> The Local Manager detail page shows or hides information based on your privileges. To see the name and details of a Local Manager listed in the Inventory hierarchy, your privileges must include login on that Local Manager or you must have the `config hierarchy` permission.

### The summary view

The summary view is the default view for the Local Manager. The contextual left navigation provides options for viewing alarms, events, scheduled tasks, session logs, SLV statistics as well as configuration, reports and devices attached to the Local Manager. To display further configuration, reports and device options, click on the right arrow ▸ on the menu. The Local Manager's configuration information is listed in the work area, followed by information on the devices attached to the Local Manager. Initially, Local Manager and device information is expanded. Collapse these sections by clicking the down arrow ▾ icons to hide this information.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > Summary

**Pasadena (192.0.2.1)**

**Last Alarm:** 21h 13m | **Last Event:** 20s

▾ **Appliance** **Status: OK** **CON:** ○ **ETH:** ● **CPU: 20/23/24**

**Description:**
**Serial #:** A505100584
**Version:** 5.1
**Build #:** 20141030:060232
**OS Version:** 5.1.0.26966

**IPv4 Address:** 192.0.2.1
**Model:** Uplogix 5000
**Temp C:** N/A
**Temp F:** N/A
**Humidity:** N/A

**IPv6 Address:** 2001:db8:3:0:20f:2cff:fe00:ccec
**Last Login:** 11/03/2014 20:31 UTC (mhoward)
**Uptime:** 7d 12m
**Last Heartbeat:** 11/06/2014 14:11 UTC (full)
**Last Archive:** 11/06/2014 13:42

▾ **Properties**

**Grid:** B-I2-101
**Rack:** 511

▾ **Devices**

Show: port number and hostname Sort by: port number Hide unconfigured devic

port1/1 ○

> The Local Manager detail page displays information based on your privileges. Scheduling functions are limited based on the `config schedule` command. Only users with access to this command on the `system` resource or port resource are able to schedule jobs on those resources from the Control Center. Some elements in the left menu structure may be unavailable based on your privileges. SLV options are unavailable until the appropriate license is applied

The Uplogix web interface provides a CLI applet used to access the Local Manager's LMS command line using Secure Shell. The CLI applet requires Java to be installed on the workstation. Download the latest version of the Java Runtime Environment from http://oracle.com.

The minimum and recommended system requirements for the CLI applet are:

| Minimum | Recommended |
|---|---|
| Microsoft® Windows® XP, service pack 2<br>Microsoft ® Internet Explorer® 7<br>Mozilla Firefox® 3.6<br>Java™ 1.5.0 | Microsoft® Windows ® XP, service pack 3<br>Latest stable releases of Microsoft ® Internet Explorer®, Mozilla Firefox® or Google Chrome<br>Java™ 1.6 or 1.7 |

> Once launched, the CLI applet is independent of your session on the Control Center. If you log out of the Control Center while an active session is running in the CLI applet window, your CLI session remains open and active.

Use the CLI button CLI to access the built-in CLI applet to access the Local Manager or devices.

## Configuring a Local Manager

**Inventory > Local Manager Page**

The Control Center provides a graphical interface for the configuration of managed Local Managers. Use the Configuration menu to edit the Local Manager’s configuration. The Configuration menu offers most of the same capabilities as the Uplogix LMS command line.

Click on the right arrow ▸ on the menu to expand the Configuration menu.

> Use only printing characters when completing text fields. Spaces are considered printing characters.

The configuration options mirror those of the Local Manager. To change the Local Manager's configuration, select an option from the menu on the left. Enter the updated values and click **Save** to force the changes onto the Local Manager.

Some options may be unavailable, depending on your privileges. The IPT option is available only if the Local Manager has a Service Level Verification (SLV) license.

## Configuration Options

| Configuration option | Permission required | Purpose |
|---|---|---|
| Applet | `show system applet` | Configure authentication settings for Socks Proxy |
| Archive | `config system archive` | Configure archiving frequency from the Local Manager to the Uplogix Control Center |
| Authentication | `config system authentication` | Configure authentication settings for the Local Manager |
| Banners | `config system banner` | Set banners on the Local Manager |
| Default Port Settings | `config settings` | Edit or delete default port settings on the Local Manager |
| DNS | `config system ip` | Specify the address of a DNS server (required only for SLV options) |
| Email | `config system email` | Configure outbound email from the Control Center– for sending reports to subscribed users |
| Environment | `config environment` | Configure temperature and humidity thresholds as well as additional environmental alarm settings. |
| Export | `config system export` | Configure settings for export of Local Manager configuration |
| IP | `config system ip` | Configure the Local Manager management Ethernet settings |
| IPv6 | `config system ip6` | Configure the Local Manager IPv6 address |
| IPT | `config system ipt` | Set up Local Manager to respond to SLV voice testing, VLANs and addresses |

| **Configuration option** | **Permission required** | **Purpose** |
|---|---|---|
| LCD | `config system keypad` | Configure the Local Manager LCD settings |
| Modem | `config answer (Modem resource)` | Configure modem behavior |
| NTP | `config system ntp` | Specify an NTP server<br>By default, Local Managers use the Uplogix Control Center |
| OS Policies | | Add and remove operating system standard policies per make and model for the deployment |
| Passwords | `config password` | Configure password settings |
| PPP | `config ppp (Modem resource)` | Configure dial-up information for establishing out-of-band connections |
| Privileges | `config privileges` | Configure access on the port associated with the Local Manager |
| Properties | `config system properties` | Configure properties on the Local Manager |
| Protocols | `config system protocols filter` | Configure IP filtering |
| | `config system protocols ssh` | Configure terminal pass-through using SSH |
| | `config system protocols telnet` | Configure terminal pass-through using Telnet |
| Pulse | `config system pulse` | Specify a pulse server for the Local Manager |
| Roles | `config role` | Create or update roles on the Local Manager |
| Rules | `config rules` | Create or update rules on the Local Manager |
| Rule Sets | `config ruleset` | Create or update rule sets on the Local Manager |

| **Configuration option** | **Permission required** | **Purpose** |
|---|---|---|
| Secondary Ethernet | `config system secondary` | Configure the Local Manager secondary Ethernet settings for bonded, capture or Outband |
| Serial | `config system serial` | Specify whether the Local Manager is DCE for its serial management connection (400/3200 Only) |
| Server | `config system management` | Configure the Local Manager to delegate to an Uplogix Control Center, the TCP port used, the heartbeat interval, and other related information |
| SLV Tests | `config slv` | Configure and view SLV tests being run on the Local Manager |
| SNMP | `config system snmp` | Enable and configure the Local Manager to respond to SNMP requests – Version 3 only |
| Syslog | `config system syslog-options` | Enable syslog and specify target syslog server |
| Subinterfaces | `config system subinterface` | Configure and view subinterfaces defined on the Local Manager's Management Ethernet port |
| Timeout | `config system timeout` | Set the idle CLI session timeout for the Local Manager |
| Virtual Slots | `config system slot` | Configure or remove virtual slots on the Local Manager |
| VPN | `config vpn (Modem resource)` | Configure VPN type and settings |

For configuration information, consult the *User Guide for Local Managers*.

Configuration settings are also available on the Inventory Group level. However, some Local Manager-specific settings such as IP address cannot be applied to an inventory group.

## Creating default Local Manager settings

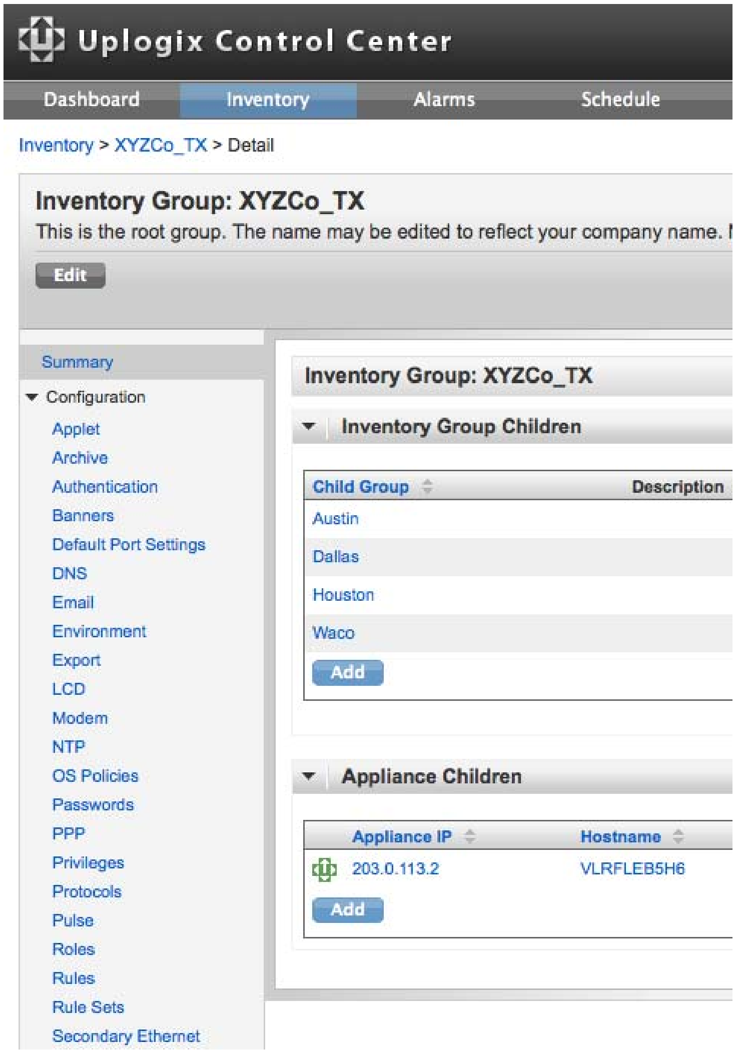
**Inventory > Group**

Use the Control Center to apply a standard configuration to all Local Managers within a group.

> To set up standard configurations, your role must have either Local Manager configuration permissions on the affected Local Managers or the `config hierarchy` permission. If your role includes the `config hierarchy` permission, only configurations for empty inventory groups can be set up. For more about roles and permissions, see Managing privileges.

To create default Local Manager settings:

1. Expand the Configuration menu on the left to view the list of Configuration settings (i.e., Applet, Archive, Authentication, etc.).



Inventory > XYZCo_TX > Detail

Inventory Group: XYZCo_TX

This is the root group. The name may be edited to reflect your company name. I

Inventory Group: XYZCo_TX

Inventory Group Children

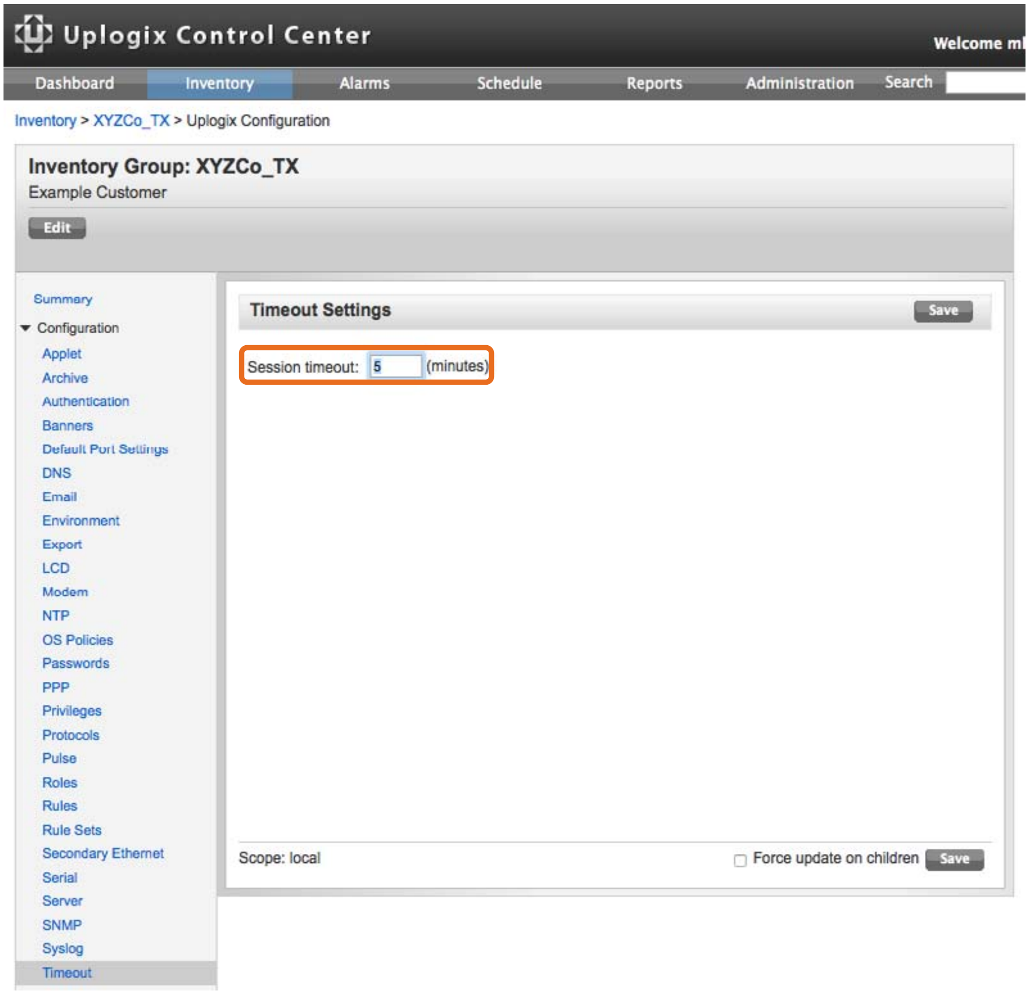
| Child Group | Description |
|---|---|
| Austin | |
| Dallas | |
| Houston | |
| Waco | |

Appliance Children

| Appliance IP | Hostname |
|---|---|
| 203.0.113.2 | VLRFLEB5H6 |

2. Click the setting name for each configuration setting to be defined.
3. Make any necessary changes.

4. To override settings locally defined to Local Managers in the group, select **Force update on children**.



Inventory Group: XYZCo_TX

Example Customer

Timeout Settings

Session timeout: 5 (minutes)

Scope: local

□ Force update on children

5. Click **Save**.

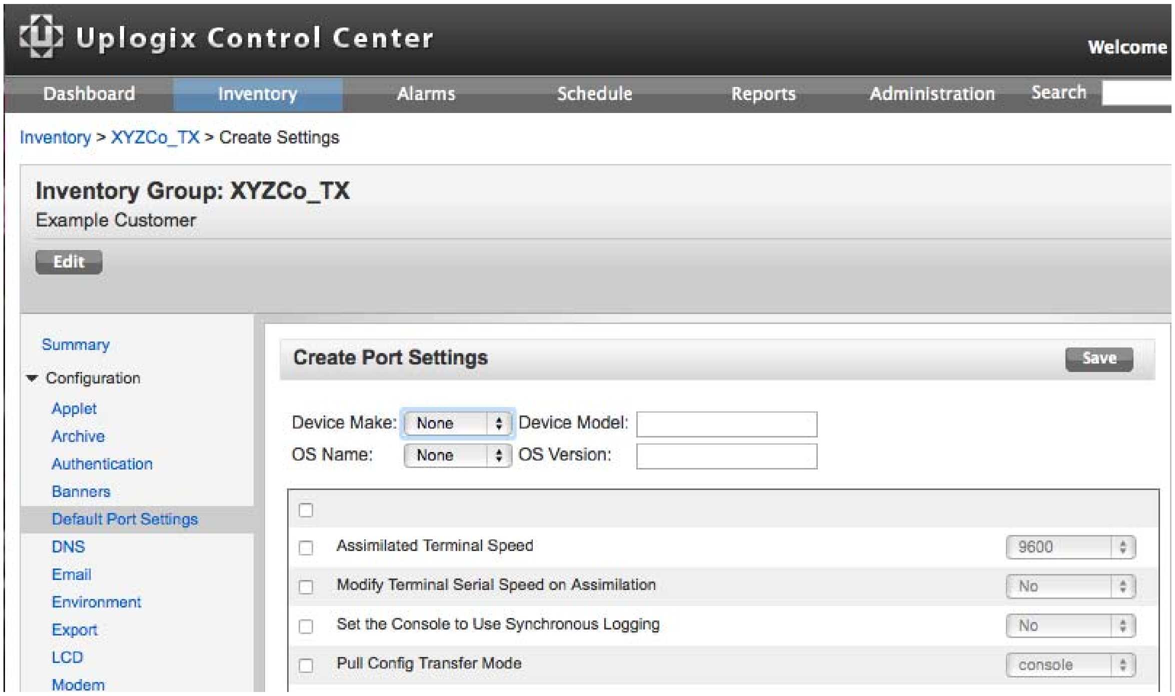
## Creating default port settings

**Inventory > Group**

Use the `config settings` command on the Local Manager to define how the Local Manager communicates with the device connected to a given port. On the Control Center, these settings can be defined and applied to more than one port; they could apply to all devices of a specific make, model, or operating system. For example, define a default port settings profile for all Cisco devices to set the terminal speed to 19200 for any Cisco device.

Default port settings are inherited from inventory groups, so a setting profile defined at the root group is inherited by the entire deployment. Settings profiles defined in a child inventory group are only inherited by its child groups and the Local Managers in those inventory groups. Therefore, it is possible to have default port settings for a Cisco 3925 that set the terminal speed to 9600 in Group 1, and identically named default port settings in Group 2 that set the speed to 19200. This type of situation can also occur when a child group already has default port settings stored under the same name as the settings you create in the parent group.

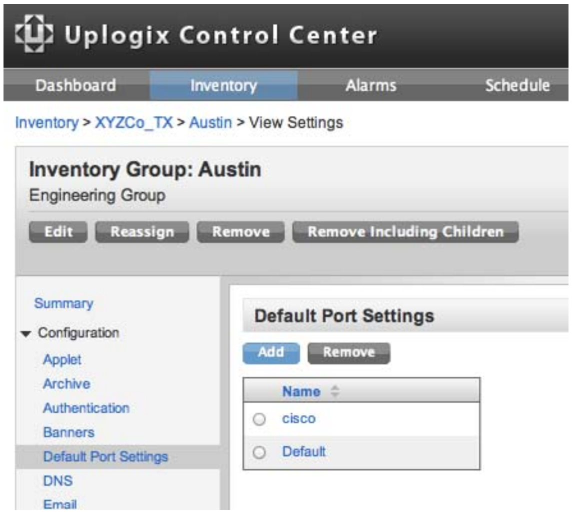
To access the Create Port Settings page, click **Default Port Settings** from within the Configuration menu for the group to which the settings apply. Click **Add** to create a new default port setting profile.



Device Make: None   Device Model:
OS Name: None   OS Version:

| | | |
|---|---|---|
| □ | | |
| □ | Assimilated Terminal Speed | 9600 |
| □ | Modify Terminal Serial Speed on Assimilation | No |
| □ | Set the Console to Use Synchronous Logging | No |
| □ | Pull Config Transfer Mode | console |

Any default settings that have been created are listed. Use the View Settings page to edit, remove, or add default port setting profiles.



Inventory Group: Austin

Engineering Group

Default Port Settings

| | Name |
|---|---|
| ○ | cisco |
| ○ | Default |

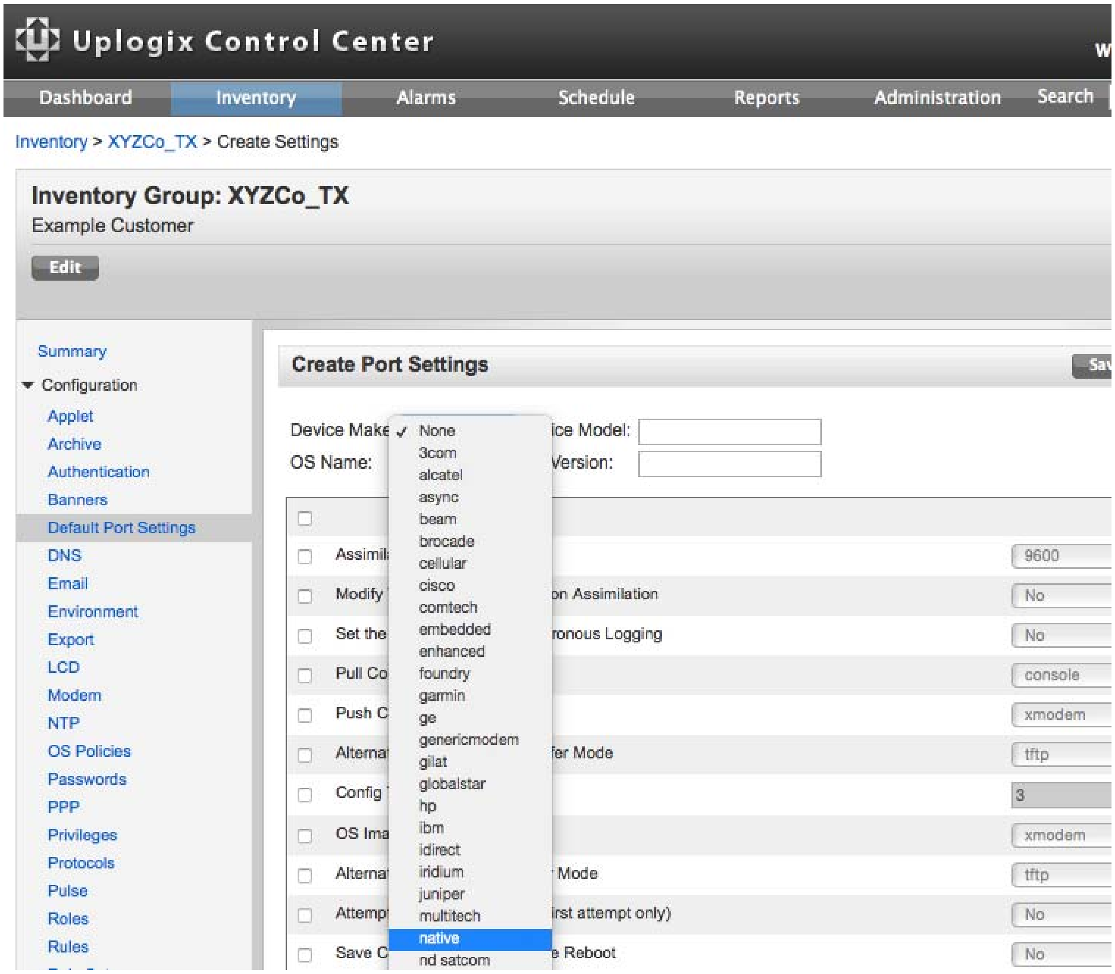
Removing a port setting profile does not affect the devices where the settings have already been applied. For example, referring to the screen above, if the Cisco settings are removed, the configuration of Cisco devices is not changed. If you then connect a Cisco device to a Local Manager, the Cisco profile is no longer present and the port settings will manually need to be configured using the `config settings` command.

The Create Settings option is not available if the inventory group is empty. However, the Default profile can be edited. This default port settings profile can be changed but not deleted.

The Create Settings and Edit Settings page present the same choices as the `config settings` command in the Uplogix LMS CLI.

Specify as much or as little information as necessary when creating settings. The Local Managers that inherit these settings will apply them to any port that matches all the information given. For example, specifying **cisco** will match all Cisco devices. Specifying **cisco** and **3925** will match only Cisco 3925 devices. If the desired device make is not listed, choose **native**.

Select the settings to change using the checkboxes on the left, and modify the values as needed.



Inventory > XYZCo_TX > Create Settings

Inventory Group: XYZCo_TX

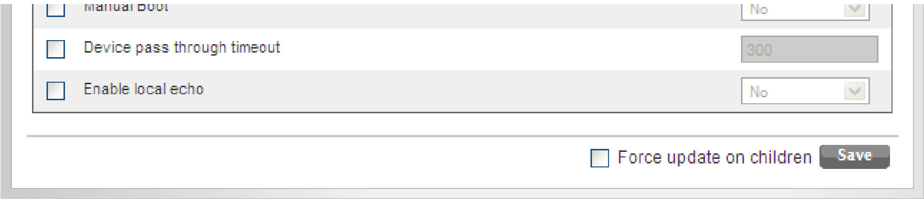
Example Customer

Create Port Settings

Device Make: None

| | | |
|---|---|---|
| □ | Assimil… | 9600 |
| □ | Modify … on Assimilation | No |
| □ | Set the … ronous Logging | No |
| □ | Pull Co… | console |
| □ | Push C… | xmodem |
| □ | Alterna… fer Mode | tftp |
| □ | Config … | 3 |
| □ | OS Ima… | xmodem |
| □ | Alterna… Mode | tftp |
| □ | Attemp… irst attempt only) | No |
| □ | Save C… e Reboot | No |

When editing existing default port settings, specify whether to force the update on any child groups within the affected inventory group. Otherwise, the settings are only updated in the current inventory group.



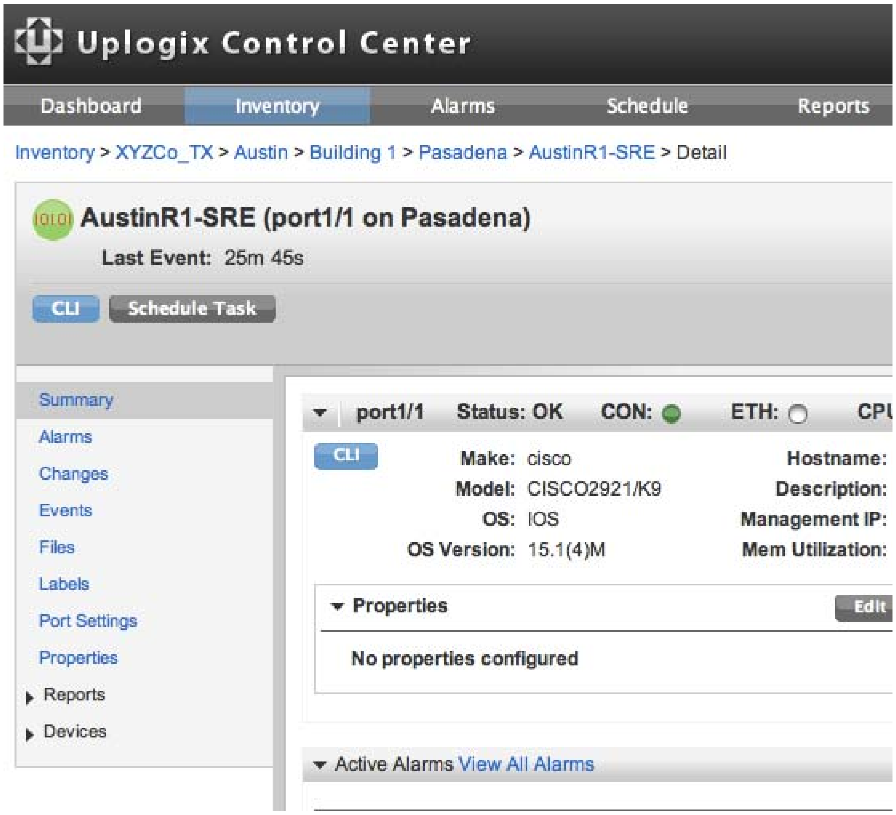
| | | |
|---|---|---|
| □ | Manual Boot | No |
| □ | Device pass through timeout | 300 |
| □ | Enable local echo | No |

□ Force update on children

## Managing from the port detail pages

**Inventory > Local Manager Page > Port Page**

From the Local Manager page, view the port details by clicking the individual port. The contextual left navigation provides access to features that correspond to CLI commands executed from the port resource.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > AustinR1-SRE > Detail

AustinR1-SRE (port1/1 on Pasadena)

Last Event: 25m 45s

port1/1 Status: OK CON: ● ETH: ○ CPU

Make: cisco
Model: CISCO2921/K9
OS: IOS
OS Version: 15.1(4)M

Hostname:
Description:
Management IP:
Mem Utilization:

No properties configured

Active Alarms View All Alarms

## Configuring virtual ports

**Inventory > Local Manager Page > Virtual Slots**

There are a variety of cases where typical console device management may be impractical or impossible. For these deployments the Local Manager can be configured to use virtual device management ports. These virtual ports mimic the functionality of the physical serial interfaces on the Local Manager. Some cases where virtual ports are applicable include:

- Manage devices where the distance between the Local Manager and the managed device is too far for a RS 232 serial connection or where there is an inability to run additional cables.
- Manage devices already connected to a console server.
- Manage devices whose serial ports are being used for other purposes.
- Manage devices with IP connectivity but no serial connectivity.
- Manage devices using a virtual Local Manager running on a VMware ESXi server.

This feature requires the purchase of a virtual port license for each virtual port from Uplogix. All virtual ports are limited to virtual slot 4 on Uplogix hardware platforms. The maximum number of allowable virtual ports varies on a platform basis as follows:

| | |
|---|---|
| Uplogix 400 | 8 virtual ports supported |
| Uplogix 430 | 4 virtual ports supported |
| Uplogix 3200 | 16 virtual ports supported |
| Uplogix 500 | 16 virtual ports supported |
| Uplogix 5000 | 16 virtual ports supported |

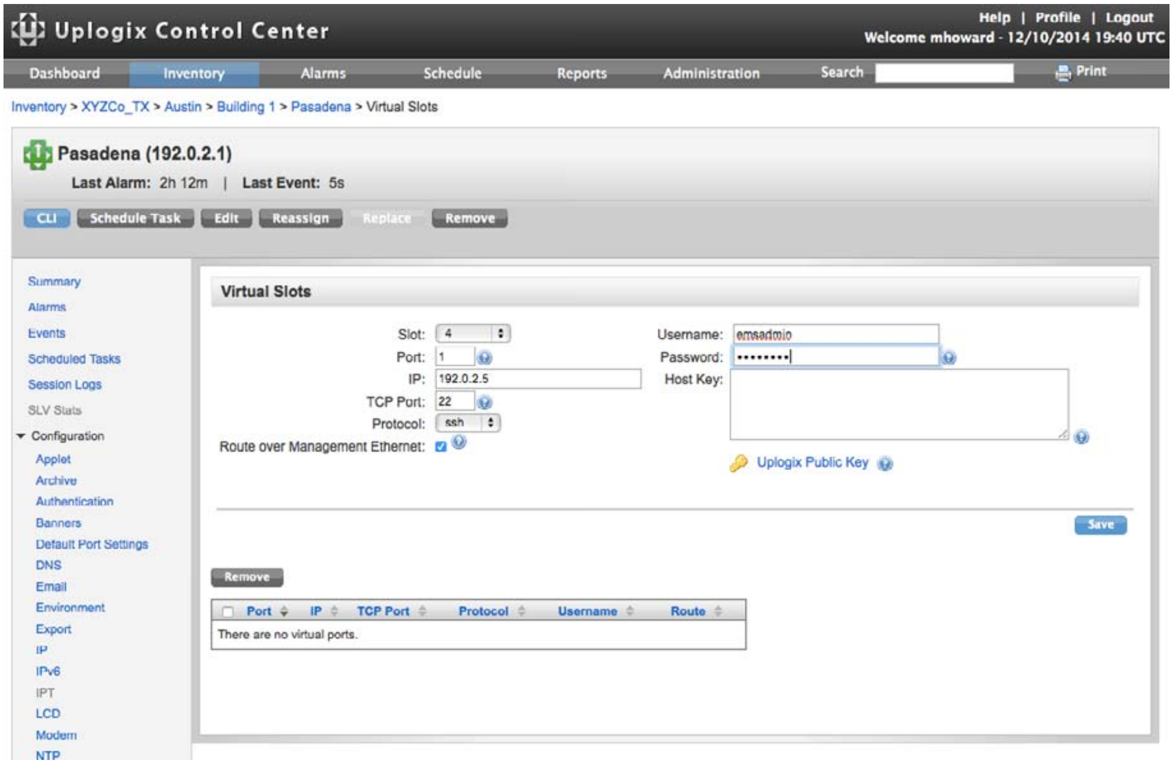
Virtual ports that terminate on the managed device (i.e., VTY/IP connection where no console server is involved) do not support all of the functionality supported for managed devices that are directly or indirectly connected to the Local Manager via a serial console port connection. The following driver functionality is not available in this case:

- LAN independence
- Bare metal restore
- ROMmon recovery
- Password/Configuration recovery where boot loader configuration is required
- Power On Self Test (POST) data collection
- Automatic Rollback
- xmodem and ymodem file transfers

The following privileges are required to configure virtual ports:

- `config system slot` – Configure a virtual slot and virtual ports.
- `show system slot` – View virtual slot/port configuration.
- `config system clear slot` – Clear virtual slot configuration.
- `config system clear port` – Clear port/virtual port data from the database.

From the Local Manager page, create a virtual port by clicking **Virtual Slots** on the Configuration menu.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > Virtual Slots

Pasadena (192.0.2.1)

Last Alarm: 2h 12m | Last Event: 5s

Virtual Slots

Slot: 4

Port: 1

IP: 192.0.2.5

TCP Port: 22

Protocol: ssh

Route over Management Ethernet: ☑

Username: emsadmin

Password: •••••••••

Host Key:

Uplogix Public Key

| ☐ | Port | IP | TCP Port | Protocol | Username | Route |
|---|---|---|---|---|---|---|
| There are no virtual ports. | | | | | | |

## Create a virtual port

Perform the following steps to configure a virtual port:

1. **Slot**: Select the slot number for the virtual port (i.e., slot **4** for port 4/1). Slot 4 is the only available slot for virtual ports on the Uplogix hardware platforms.
2. **Port**: Enter the port number (i.e., **1** for port 4/1, where slot is 4).
3. **IP**: This is the IP address of the managed device that the virtual port is terminating on or the IP address of the console server that has a serial connection to the managed device.
4. **TCP Port**: Enter the TCP port for this virtual port connection (i.e., **22** for a SSH virtual port connection).
5. **Protocol**: Select the type of virtual port connection—**SSH** for a secure virtual port; otherwise, use **telnet**.
6. **Route over Management Ethernet**: Leave this box checked if the virtual port connection should always route out the primary/in-band management Ethernet connection, even when the Local Manager brings up an out-of-band connection.
7. **Username**: Secure (SSH) virtual ports must authenticate to the end device in order to build the virtual port connection—this requires either a username/password combination or providing a username and then importing the Local Manager public key into the managed device for that user to use key authentication in lieu of password authentication for the user.
8. **Password**: Enter the supplied username's password for the managed device when configuring a secure virtual port. This can be omitted if SSH key authentication is being configured on the managed device.

9. **Host Key**: Optional if not running in FIPS mode. The Local Manager uses the host key to validate the identity of the managed device to which the virtual port is connecting. If left blank, the Local Manager will save the one it receives from the managed device when it connects for the first time.

10. Click **Save** to add the virtual port.

For example, port 1/1 may be given a new label, **Core Switches**.

## Modify a virtual port

To modify an existing virtual port definition on the Local Manager Virtual Slot configuration page, click on the port number (i.e., Port 4/1) hyperlink in the virtual port table—this will populate the virtual port form at the top of the configuration page with the current settings for the virtual port. Next, modify any of the virtual port settings in the form and then click **Save** to save the virtual port definition.

## Delete a virtual port

To delete an existing virtual port from the Local Manager Virtual Slot configuration page, click the checkbox to the left of the port to be deleted in the virtual port table and then click **Remove**.

## Creating categories for managing devices

There are several methods to manage your Uplogix deployment and managed devices. Use inventory groups to manage Local Managers by logical groups such as location or business unit. Device information entered during port configuration of the Local Managers allows users to manage devices by make and model. Finally, users can assign labels to a Local Manager's managed devices to group them in more flexible ways.

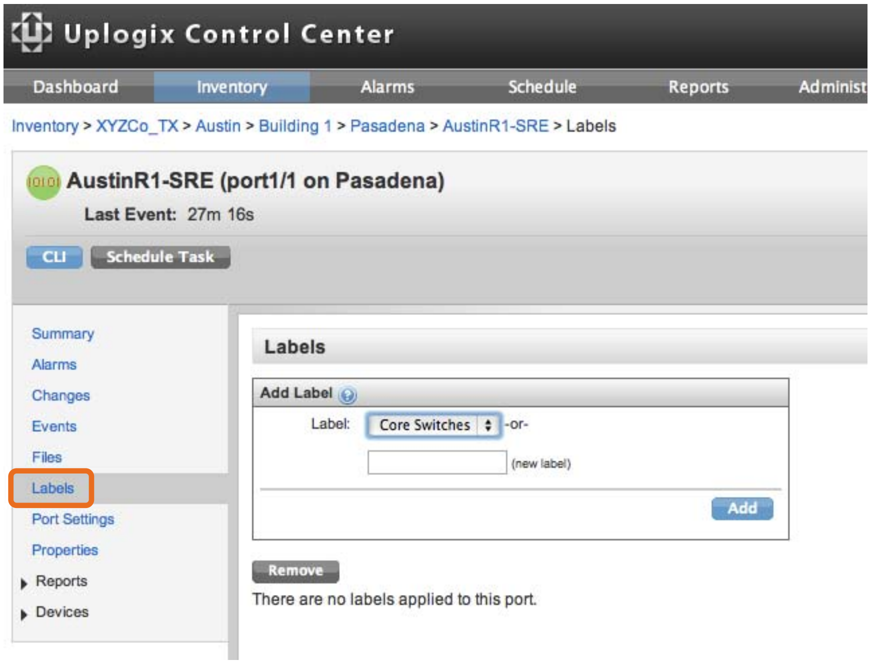
Labels can be used to group devices by other criterion such as maintenance windows, scheduling reports, or assigning privileges on all routers regardless of make. Another would be grouping managed devices by business unit in cases where several business units share a Local Manager.

Labels are managed from the Control Center and cannot be assigned from the Local Manager's LMS command line.

## Creating port labels

**Local Manager Page > Port Page**

To assign a label to a port, open the detail page for the Local Manager that manages it. Then expand the detail for the port to be labeled.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > AustinR1-SRE > Labels

AustinR1-SRE (port1/1 on Pasadena)

Last Event: 27m 16s

Label: Core Switches -or-

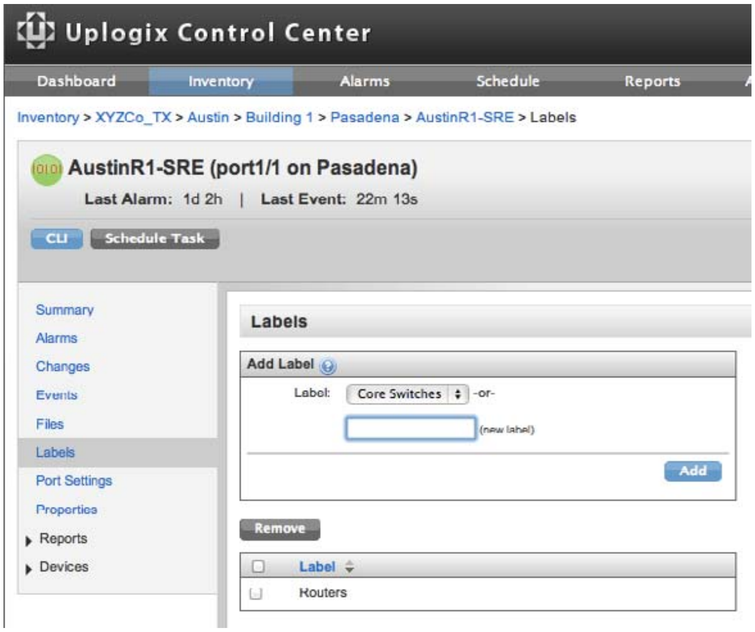
(new label)

There are no labels applied to this port.

Click the **Labels** menu item to open the Labels page.

Create a new label for the port and then click **Add** to apply the label to this port. More than one label can be applied to a port.

For example, port 1/1 may be given a new label, **Core Switches**.



AustinR1-SRE (port1/1 on Pasadena)

Last Alarm: 1d 2h | Last Event: 22m 13s

Label: Core Switches -or- (new label)

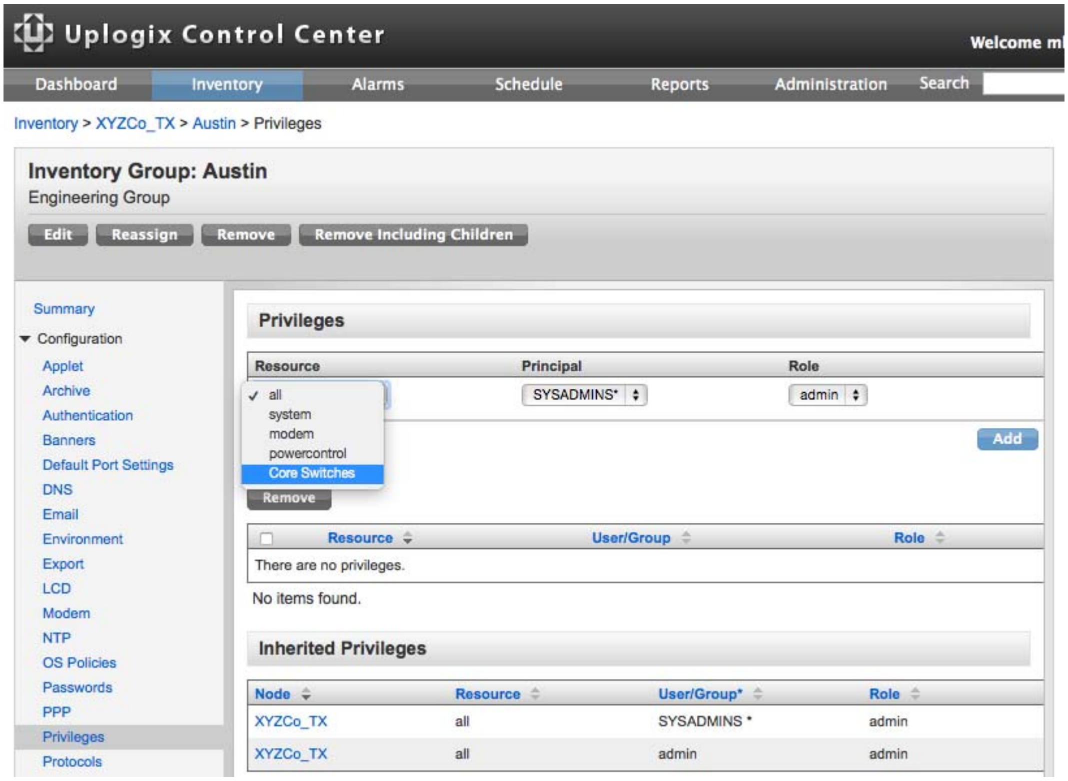
| □ | Label |
|---|---|
| □ | Routers |

## Assigning privileges by label

**Inventory > Group > Configuration > Privileges**

Privileges are created by assigning the user or user group a role (such as `admin` or `guest`) to a resource (such as port 1/2). The default resources within the inventory are the same resources found in the Uplogix LMS command line interface - system, modem, powercontrol, and the individual ports. If labels have been created, they are also considered resources.

The example below shows how to assign admin rights to a user on all routers. For more information about assigning privileges, see Managing privileges.



Inventory Group: Austin

Engineering Group

| Resource | Principal | Role |
|---|---|---|
| Core Switches | SYSADMINS* | admin |

| □ | Resource | User/Group | Role |
|---|---|---|---|
| There are no privileges. | | | |

No items found.

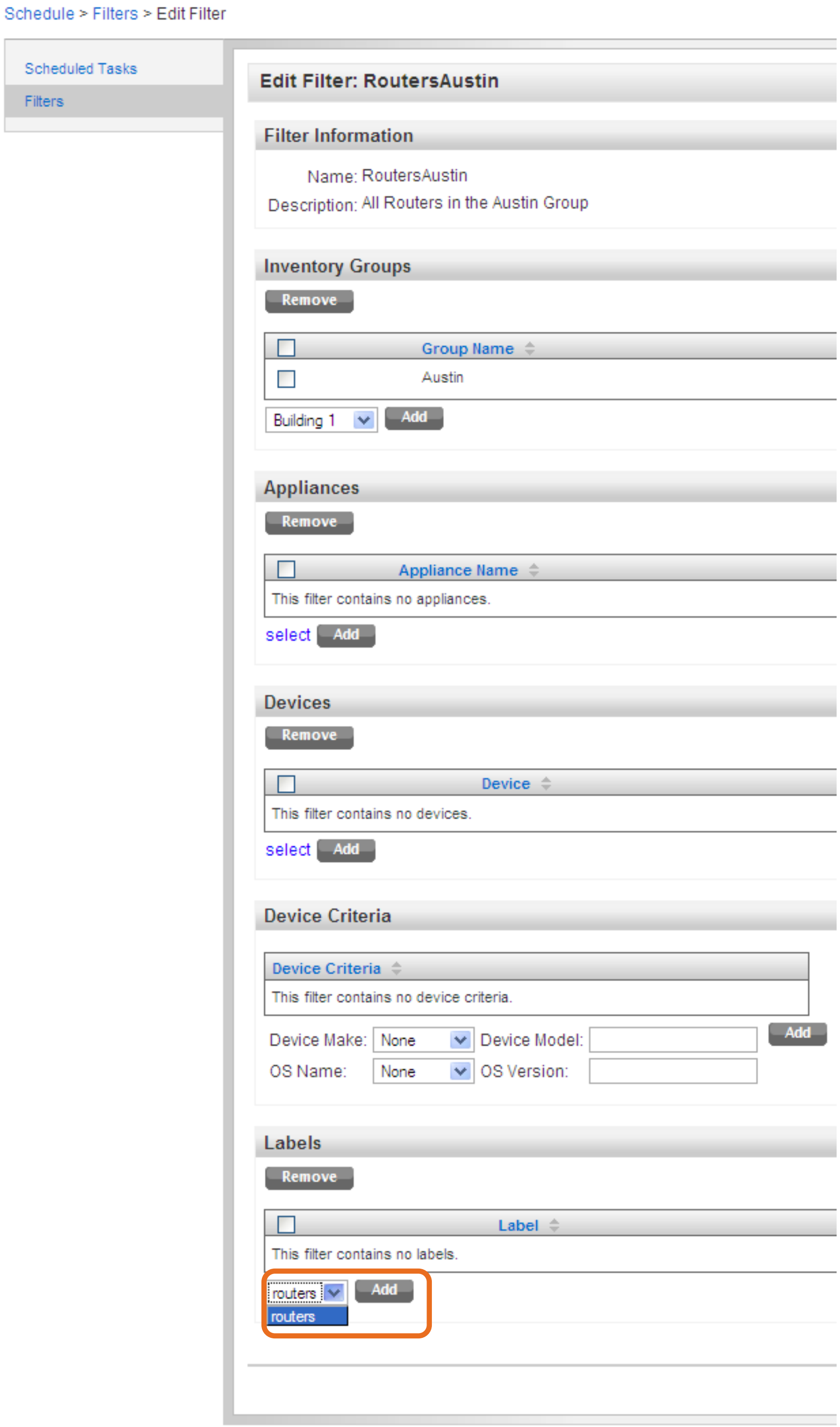
Inherited Privileges

| Node | Resource | User/Group* | Role |
|---|---|---|---|
| XYZCo_TX | all | SYSADMINS * | admin |
| XYZCo_TX | all | admin | admin |

## Setting up task filters using labels

**Schedule > Filters**

Use Labels as a filtering criterion when setting up filters for scheduling tasks. View and edit these filters on the **Schedule > Filters** page. For more information about task filters, see Setting up filters and scheduling tasks.



Schedule > Filters > Edit Filter

Edit Filter: RoutersAustin

Filter Information

Name: RoutersAustin

Description: All Routers in the Austin Group

Inventory Groups

| □ | Group Name |
|---|---|
| □ | Austin |

Building 1

Appliances

| □ | Appliance Name |
|---|---|
| This filter contains no appliances. | |

Devices

| □ | Device |
|---|---|
| This filter contains no devices. | |

Device Criteria

| Device Criteria |
|---|
| This filter contains no device criteria. |

Device Make: None

Device Model:

OS Name: None

OS Version:

Labels

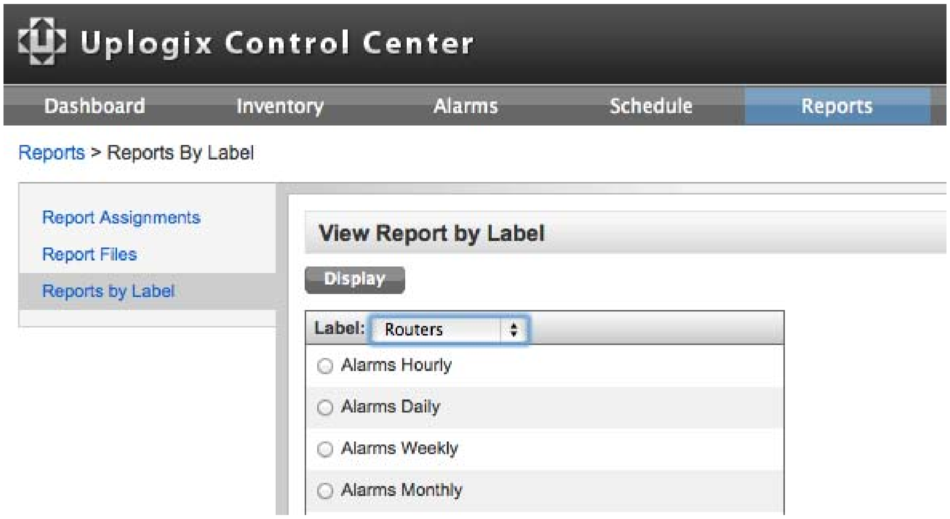
| □ | Label |
|---|---|
| This filter contains no labels. | |

routers

### Viewing reports by label

**Reports > Reports by Label**

Once labels are assigned to port devices, the Control Center automatically creates reports based on the labels. View these reports on the **Reports > Reports by Label** page. For more information about reports, see Viewing reports.



Label: Routers

○ Alarms Hourly

○ Alarms Daily

○ Alarms Weekly

○ Alarms Monthly

## Managing scheduled tasks

Schedule routine tasks to take place automatically. To schedule a task:

- Create a task filter or select an existing task filter
- Choose and schedule the task

A filter specifies the portion of the inventory that is affected by a scheduled task.

For example, to define a task that clears the counters on all Cisco devices within a specific inventory group periodically, a filter is needed which specifies all Cisco devices within that group. Use this filter to schedule the Clear counters task.

Filters and filter options are limited to Local Managers and ports to which you have `config schedule` access.

Some scheduled tasks are available from the expanded Local Manager detail pages. These tasks are scheduled only on the individual Local Manager; therefore a filter does not need to be selected.

This section covers:

- Setting up filters and scheduling tasks
- Tasks that can be scheduled
- Scheduling tasks on a single Local Manager
- Scheduling software upgrades on Local Managers

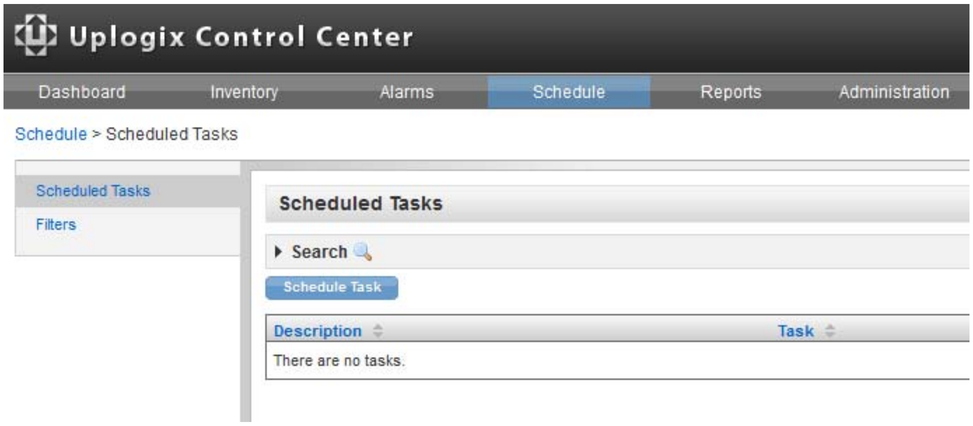
## Setting up filters and scheduling tasks

**Schedule**

Use the Schedule tab to schedule tasks that will be performed across several devices or Local Managers. Steps in this process are:

- Specify what equipment is affected by choosing or creating a filter
- Specify the type of task
- Provide the information required to complete the task
- Specify when the task is to be performed and, if applicable, how often it repeats

When the Schedule tab is clicked, the list of scheduled tasks opens. If no filters have been set up, then no tasks are listed and the schedule task button is not available.



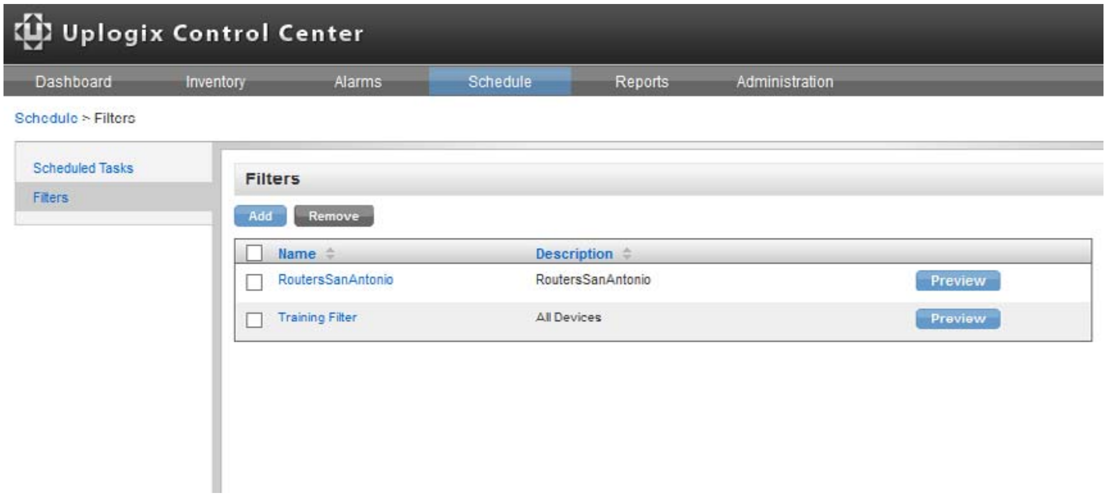
| Description | Task |
|---|---|
| There are no tasks. | |

A filter must be created before a task can be scheduled.

### Creating a filter

**Schedule > Filters**

To create a new filter, select **Filters** from the contextual left navigation on the Schedule tab.

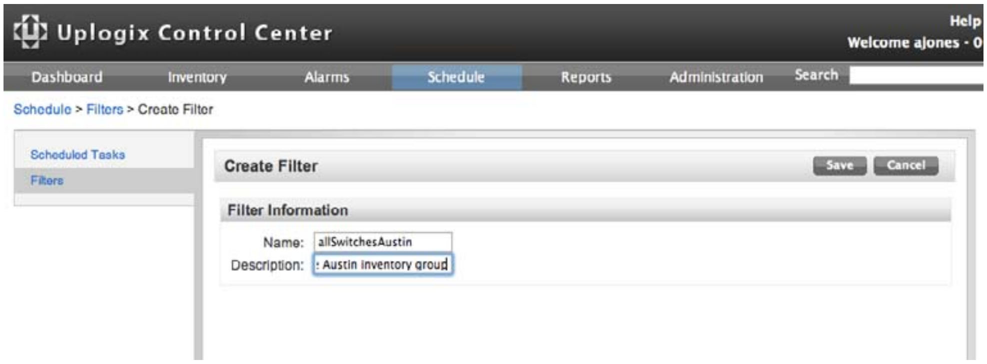


| □ | Name | Description | |
|---|---|---|---|
| □ | RoutersSanAntonio | RoutersSanAntonio | Preview |
| □ | Training Filter | All Devices | Preview |

To create a filter and filter criteria:

1. Enter a name and a description for the filter. The name of the filter cannot be changed once it is created, though the filter can be deleted and recreated under a new name.

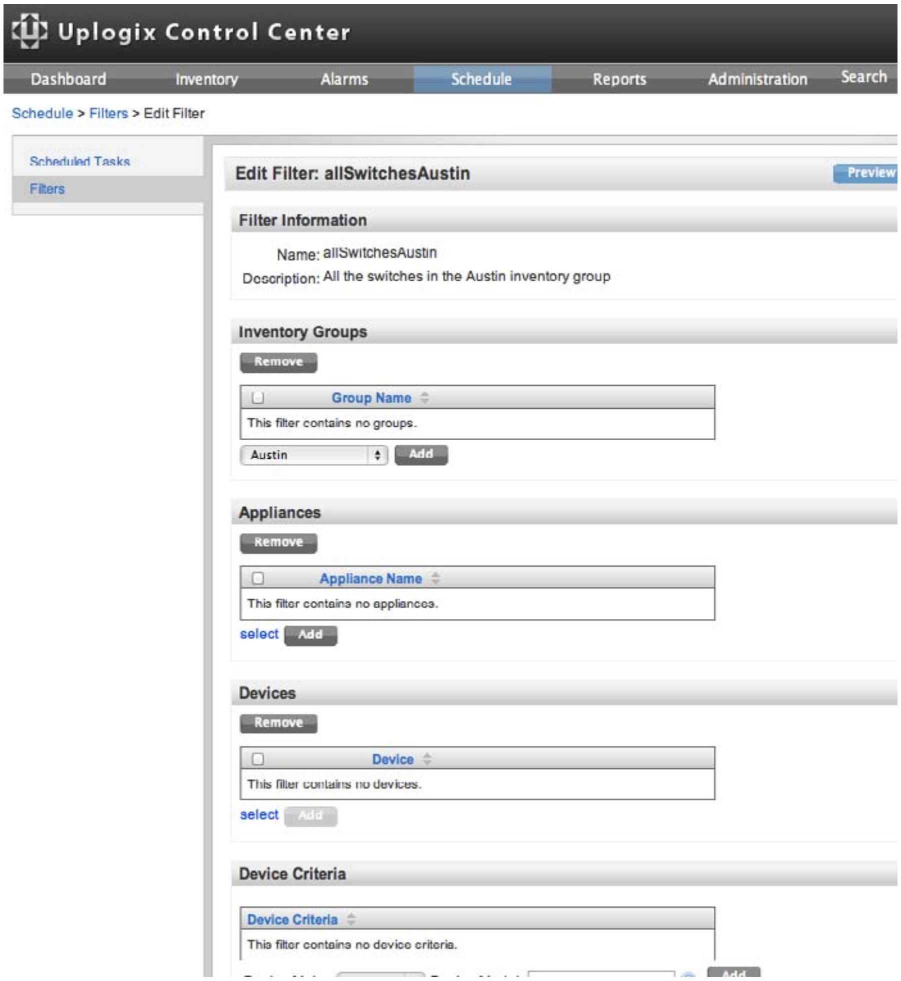
> Use only printing characters when completing text fields. Spaces are considered printing characters.



Name: allSwitchesAustin

Description: : Austin inventory group

2. Click **Save**. If options have been defined, they display under each inventory group along with a hyperlink to remove them.



Name: allSwitchesAustin

Description: All the switches in the Austin inventory group

This filter contains no groups.

This filter contains no appliances.

This filter contains no devices.

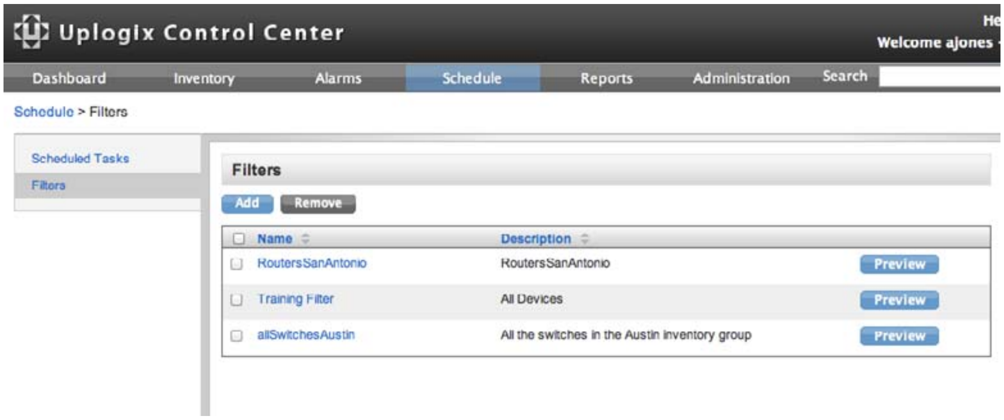
This filter contains no device criteria.

3. Add filter criteria as needed by choosing a criterion and then clicking **Add** to register your choice. Multiple criteria can be applied in each section.

   Initially, each section of the filter editor displays a message indicating that nothing has been added to this section of the filter. Use the Label section to use the port labels that have been created, if any. For more information about creating port labels, see Creating your own categories to manage devices.

   Device makes, operating systems, group names, and labels are presented in drop-down lists. Local Managers and devices are presented in the Hostname Picker dialog boxes.

4. Click **Preview** to see which Local Managers and devices are affected by the filter. When satisfied with the filter, click **Done** to save your changes. The Filter Manager page now lists the filter which can be previewed, edited, or deleted.



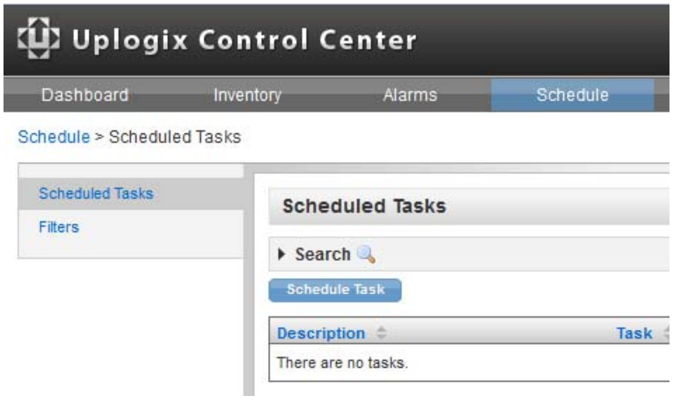
| | Name | Description | |
|---|---|---|---|
| □ | RoutersSanAntonio | RoutersSanAntonio | Preview |
| □ | Training Filter | All Devices | Preview |
| □ | allSwitchesAustin | All the switches in the Austin inventory group | Preview |

## Scheduling a task

**Schedule > Scheduled Tasks**

Once task filters have been defined, tasks can be scheduled from the Scheduled Tasks page.

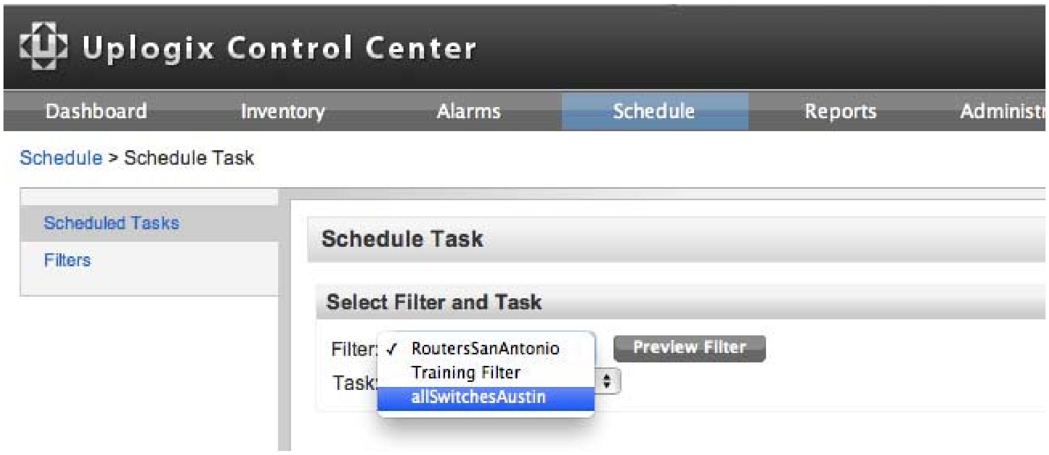
By default, the only tasks shown on the Scheduled Tasks List are tasks that have not yet been completed. To see all tasks, select **Show completed tasks**.



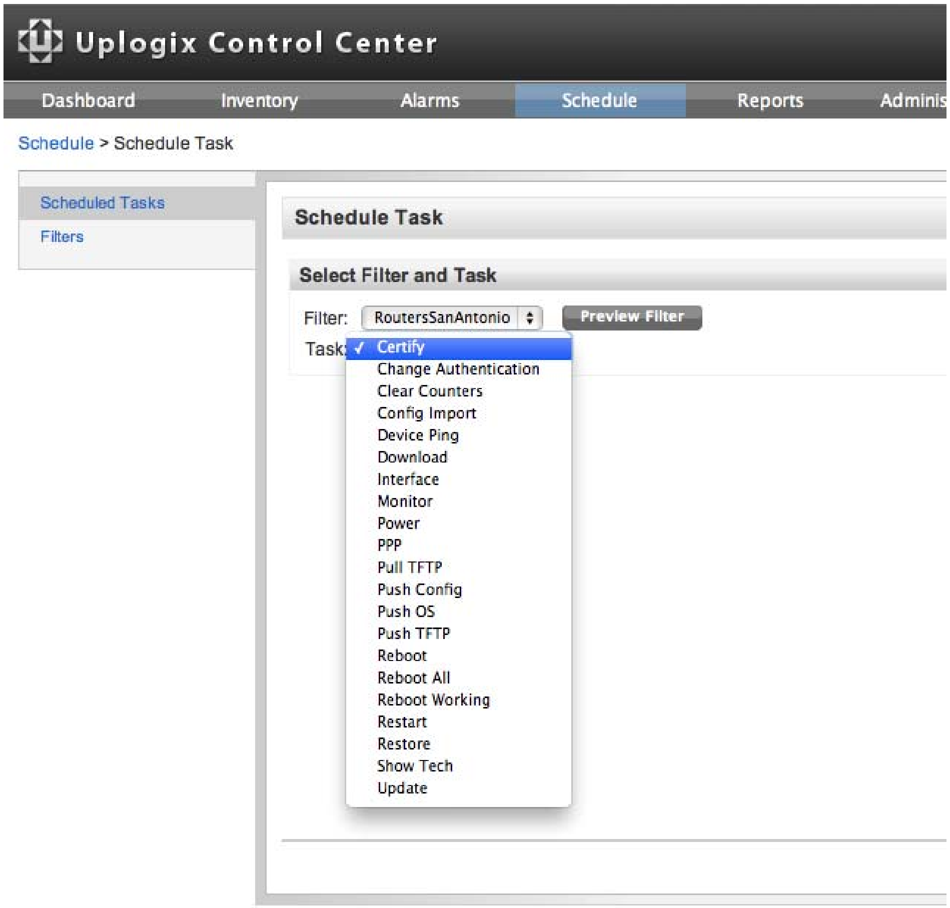
There are no tasks.

1. Select **Scheduled Tasks** from the contextual left navigation on the Schedule tab.

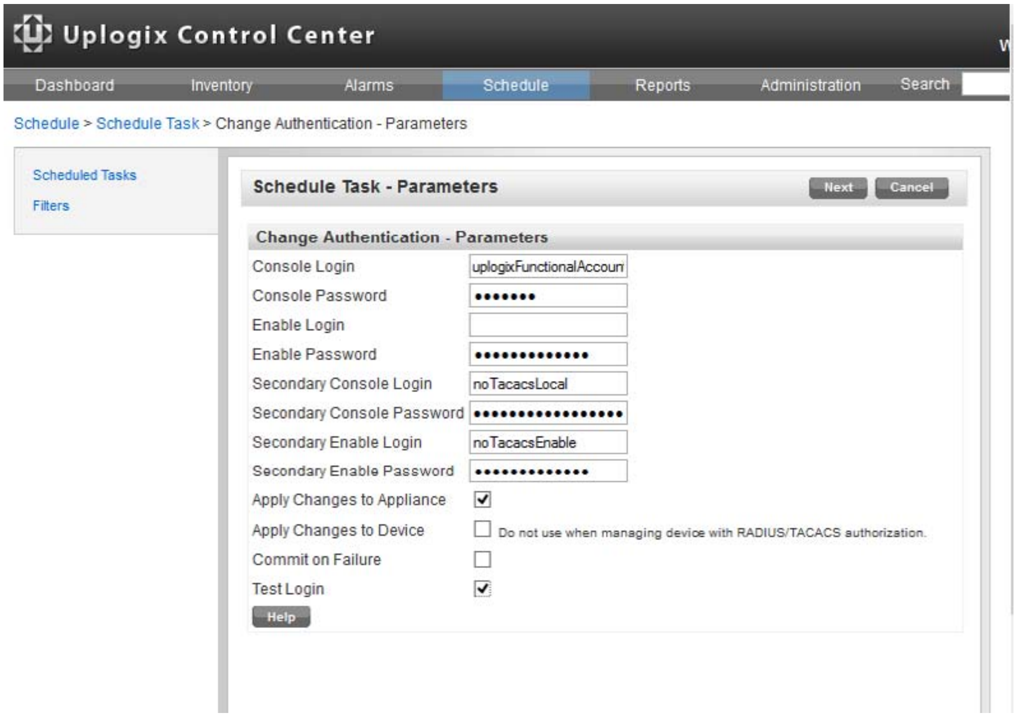
2. Available task filters are shown in the Filter list. Choose the appropriate filter from the list. If the filter is not listed, click **Cancel** and create a new filter (see the previous section).



3. There are several types of tasks that can be scheduled. The tasks available depend on the device platform. For example, the Clear Counters action is not available for servers.



Some tasks, such as Change Authentication, take more than one step to schedule. Others, such as Clear Counters, present only a scheduling page.



Schedule > Schedule Task > Change Authentication - Parameters

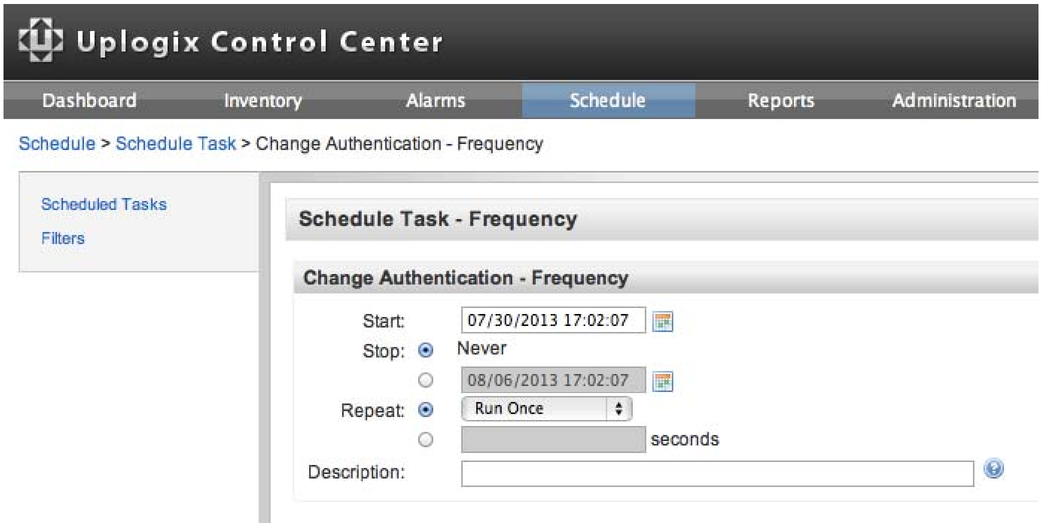
Schedule Task - Parameters

Change Authentication - Parameters

| | |
|---|---|
| Console Login | uplogixFunctionalAccoun |
| Console Password | ••••••• |
| Enable Login | |
| Enable Password | ••••••••••••• |
| Secondary Console Login | noTacacsLocal |
| Secondary Console Password | ••••••••••••••••• |
| Secondary Enable Login | noTacacsEnable |
| Secondary Enable Password | ••••••••••••• |
| Apply Changes to Appliance | ☑ |
| Apply Changes to Device | □ Do not use when managing device with RADIUS/TACACS authorization. |
| Commit on Failure | □ |
| Test Login | ☑ |

4. The default starting date and time is the current date and time. Change the date and time if the task is not to be executed immediately.

5. Complete the required information on each page, and click **Schedule**.



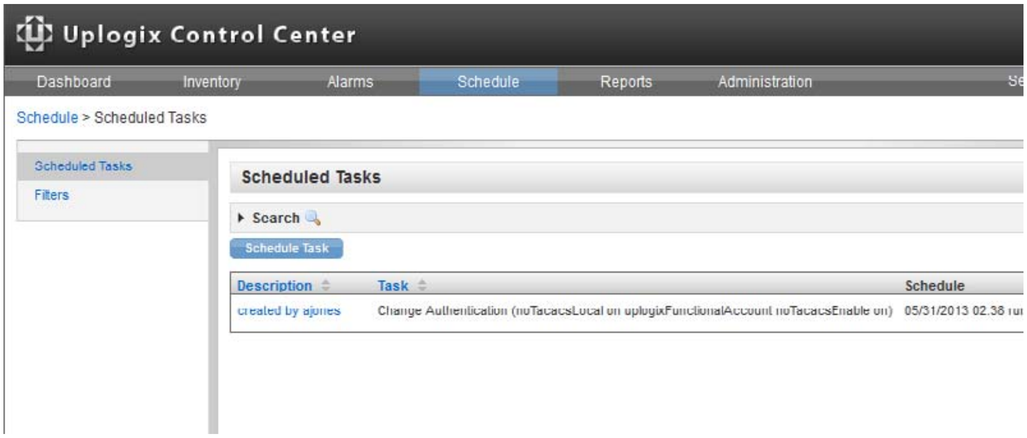
Schedule > Schedule Task > Change Authentication - Frequency

Schedule Task - Frequency

Change Authentication - Frequency

| | | |
|---|---|---|
| Start: | | 07/30/2013 17:02:07 |
| Stop: | ● | Never |
| | ○ | 08/06/2013 17:02:07 |
| Repeat: | ● | Run Once |
| | ○ | seconds |
| Description: | | |

6. The Scheduled Tasks list shows the new task.



| Description | Task | Schedule |
|---|---|---|
| created by ajones | Change Authentication (noTacacsLocal on uplogixFunctionalAccount noTacacsEnable on) | 05/31/2013 02.38 ru |

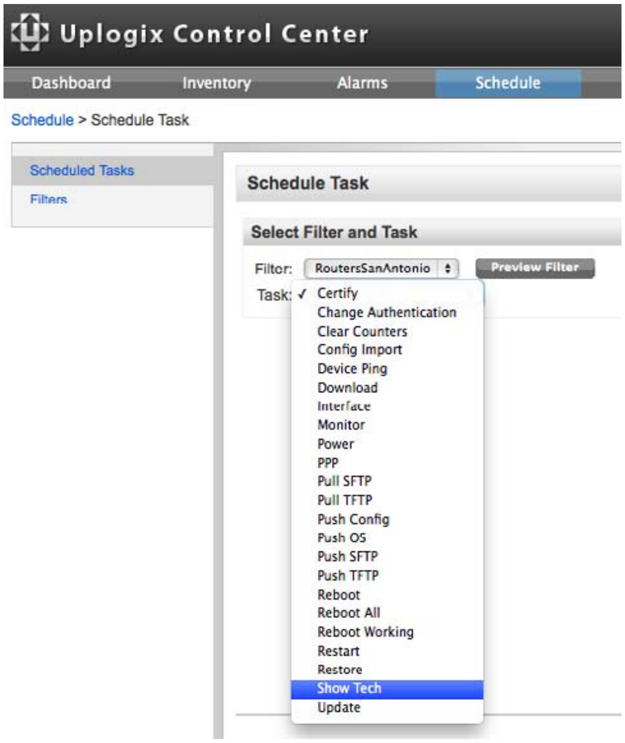
- Click **details** to view the equipment affected by the task.
- Click **hold** to postpone the task.
- Click **resume** when ready to allow the task to proceed.
- Click **cancel** if the task should not be executed.

By default, tasks are hidden after they are completed or canceled. To see tasks that are no longer pending, select **Show completed tasks** at the top of the page.

## Tasks that can be scheduled

**Schedule > Schedule Tasks**

The list of tasks available depends on the filter. If the filter specifies managed devices by make, some tasks are unavailable.



Filter: RoutersSanAntonio

Task: Show Tech

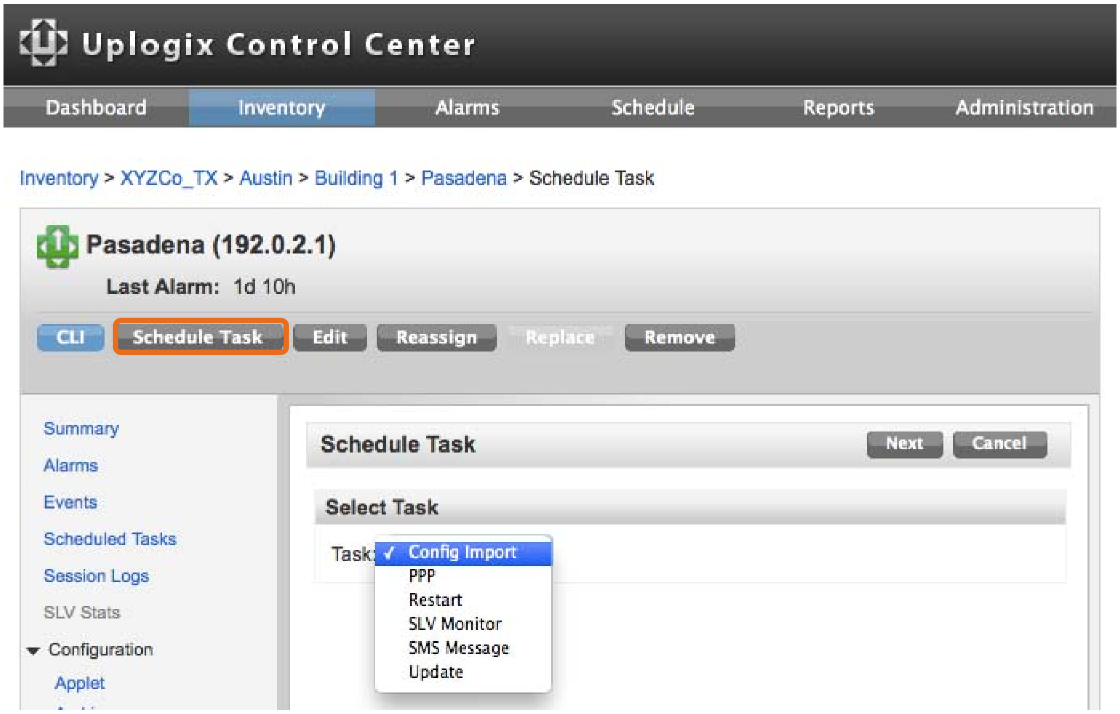
| Task | Purpose |
|---|---|
| Certify | This is an Alcatel specific task that validates a configuration before deploying it. |
| Change Authentication | Schedule an authentication change for a device, with the option to change the console login and password, the enable login and password, and on some devices failover credentials used when centralized authentication systems are unavailable. |
| Clear Counters | Clear interface counters on a device. All interfaces counters are cleared. |
| Config Import | Import Local Manager configuration settings. The file to be imported must exist in the File Archive prior to scheduling. For more information, see Uploading files from your computer to the File Archive. |
| Device Ping | Schedule a ping task from a device attached to the Local Manager to a target destination. |
| Download | This task is a step in the process of applying a file to a Local Manager or a managed device. To make the file available to the Local Manager, it must be downloaded from the Control Center to the Local Manager. Before downloading files to Local Managers, they may need to be uploaded to the Uplogix Control Center. See Uploading files from your computer to the File Archive. To download a file from the Control Center to Local Managers, choose the type of file and file status based on where the file should be saved. Then select a file to download from the File Archive. |
| Interface | Interfaces can be set on, off, or cycled at a specified time. Choose the desired action and enter the name of the interface. |
| Monitor | Schedule interface, ping, chassis, console, or log monitors to run, defaults to 30 seconds. |
| Power | Devices can be powered on, off, or power cycled at a specified time. Choose the desired action and if applicable, enter the delay between powering off and on. |

| **Task** | **Purpose** |
|---|---|
| PPP | Schedule the Local Manager to initiate Outband (out-of-band) communication. |
| Pull SFTP | Pull various files from device to Local Manager port file system utilizing secure FTP. |
| Pull TFTP | Pull various files from device to Local Manager port file system utilizing FTP. |
| Push Config | Push a new configuration onto a device by specifying the type of file and version. These options refer to files located on the Local Manager, in the port’s file archive. Also, specify whether the device should be rebooted after the new configuration is loaded. |
| Push OS | As with configurations, operating system images can be pushed onto a device. |
| Push SFTP | Push various files to device from Local Manager port file system utilizing secure FTP. |
| Push TFTP | Push various files to device from Local Manager port file system utilizing FTP. |
| Reboot | Schedule a device to reboot at a specified time. |
| Reboot All | This is an Alcatel specific task. |
| Reboot Working | This is an Alcatel specific task. |
| Restart | Restart the Local Manager. |
| Restore | This is an Alcatel specific task. |
| Show Tech | Execute low-level debug collection command on the device and automatically save the output to the Local Manager. |
| Update | Update the Local Manager software. The new software image must exist in the File Archive prior to scheduling. |

## Scheduling tasks on a single Local Manager

**Inventory > Local Manager Page**

Schedule the following tasks for a specific Local Manager from the Local Manager's detail page.



| Task | Purpose |
|---|---|
| Config Import | Import a configuration file. The appropriate file must be present in the File Archive. See Uploading files from your computer to the File Archive. |
| PPP | Schedule an Outband on cycle or off action. |
| Restart | Restart the Local Manager. |
| SLV Monitor | Setup SLV monitors. This task is available only if your license includes Service Level Verification. In addition, the appropriate SLV tests and rules must be available.<br>For detailed information about creating rules, refer to the *Guide to Rules and Monitors*. |

| Task | Purpose |
|---|---|
| SMS Message | Send an SMS message to a Local Manager containing a command to execute. Only PPP on (Outband) is supported. |
| Update | Schedule a software upgrade for the Local Manager. The appropriate file must be present in the File Archive; otherwise the update cannot be scheduled. |

## Scheduling software upgrades on Local Managers

Automate the process of upgrading Local Managers.

The steps in the upgrade process are:

- Download the software upgrade to your computer
- Upload the software to the File Archive on the Control Center
- Schedule the Update task

### Downloading the software upgrade to your computer

To upgrade the Local Managers that the Control Center manages, download the software upgrade to your computer and then upload it to the Control Center following these steps:

1. Point your browser to support.uplogix.com
2. Navigate to the software download page, locate the appropriate file and download it to your computer.

If you are not certain which file to use, contact Support at support@uplogix.com.

### Uploading files from your computer to the File Archive

After downloading the desired file to your computer, follow these steps to upload the files to the File Archive:

1. Go to the Control Center's **Administration > File Archive** page.

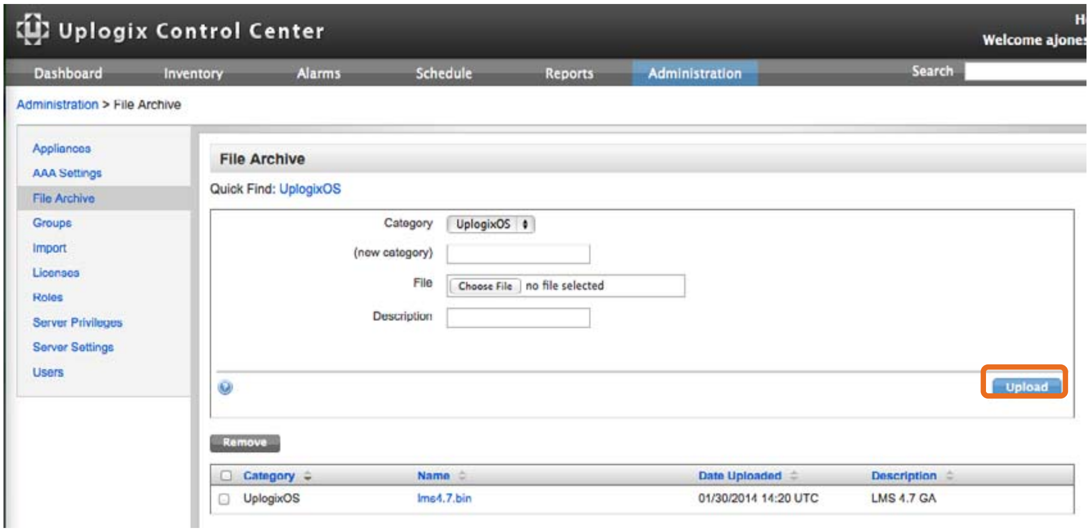
   Any files present are displayed with category, filename, upload date, and description information.

2. Choose a category for the file being uploaded. If the selected category does not exist, it is automatically created.

> Do not use spaces in the category name.

3. Browse to and select the file that is to be uploaded. If a file with the same name as a file currently in the selected category is uploaded, this new upload overwrites the existing file.

4. Optionally, enter a file description, which can be helpful in identifying the file.



Category: UplogixOS

(new category):

File: no file selected

Description:

| ☐ | Category | Name | Date Uploaded | Description |
|---|---|---|---|---|
| ☐ | UplogixOS | lms4.7.bin | 01/30/2014 14:20 UTC | LMS 4.7 GA |

5. Click **upload** to copy the file to the Control Center. When the upload is complete, the File Archives list displays the file.

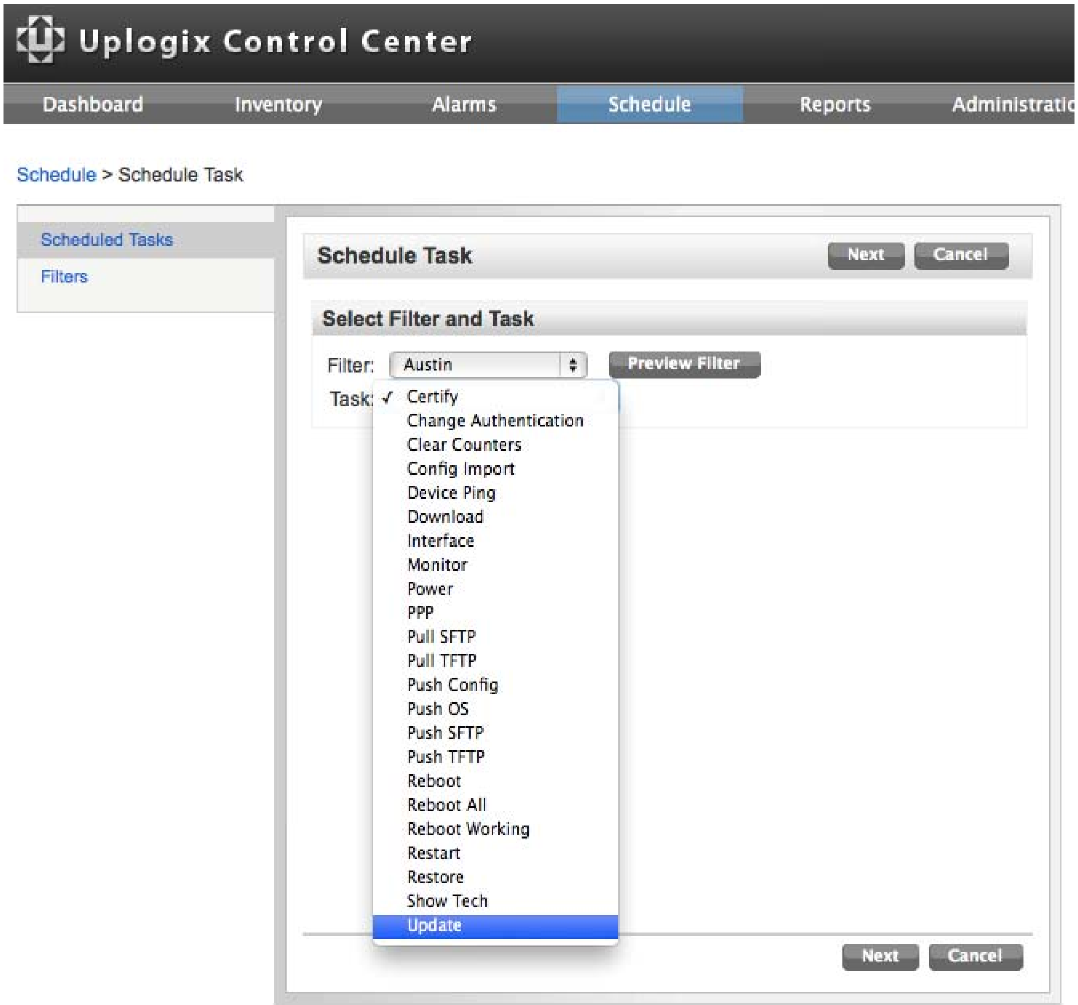
**Caution:** When upgrading to a new release (for example, from 4.7 to 5.1), always upgrade the Control Center first. Local Managers cannot heartbeat properly to a Control Center using an earlier release of software. This is not necessary for patch releases (for example, 5.1 to 5.1.x).

### Scheduling the update task for more than one Local Manager

To schedule the update, there must be a task filter that specifies the Local Managers to be upgraded. For information about creating filters, see Setting up filters and scheduling tasks.

1. On the Schedule tab, click **Schedule Task** to open the Schedule Task page.
2. Choose the filter that specifies the Local Managers to be upgraded and then select the **Update** task.

To avoid degrading the Control Center's performance, upgrade no more than 100 Local Managers at the same time.



Filter: Austin

Task: Update

3. Continue as for scheduling any task.

## Scheduling the update task on a single Local Manager

In some cases, you may wish to upgrade only one Local Manager.

1. Open the **Inventory** tab and navigate to the Local Manager.
2. Ensure that the Local Manager has been moved out of the Unassigned group.
3. Click **Schedule Task** and then select **Update** as the task type.
4. Click **Next** to open the Schedule Task Parameters page.
5. Select the file just uploaded and click **Next**.
6. Continue as for scheduling any task.

## Managing rules and monitors

Monitors gather data, in some cases by running user-defined tests; and they may include rules to evaluate and respond to the data.

A rule specifies at least one condition to evaluate, and at least one action to take if the set of conditions evaluates true. Rules may also include a time element.

Rules can be grouped together into rule sets. This simplifies the process of creating monitors.

This section covers:

- Working with rules
- Working with rule sets
- Promoting rules and rule sets
- Scheduling monitors

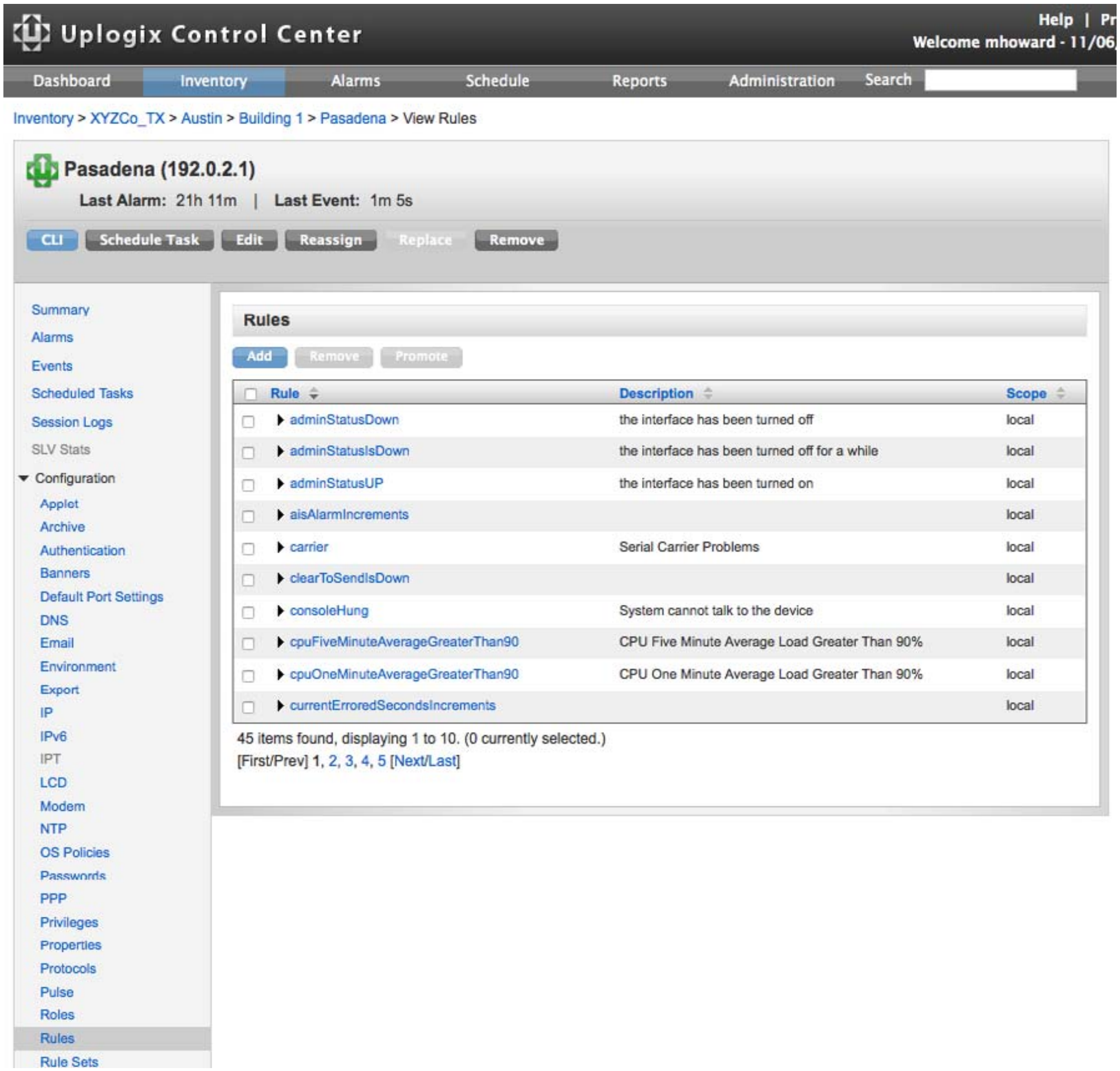
For a detailed discussion of rules and monitors, refer to the *Guide to Rules and Monitors.*

### Working with rules

**Inventory > Configuration > Rules**

Rules can be centrally managed from the Control Center. Like privileges and preferences, rules edited at the inventory group level are inherited by child groups and Local Managers. Rules edited at the Local Manager level only apply to that Local Manager.

To access Rules, click **Rules** from the Configuration menu at a group detail or Local Manager detail page. New rules can be created and existing rules can be edited.



| □ | Rule | Description | Scope |
|---|---|---|---|
| □ | ▸ adminStatusDown | the interface has been turned off | local |
| □ | ▸ adminStatusIsDown | the interface has been turned off for a while | local |
| □ | ▸ adminStatusUP | the interface has been turned on | local |
| □ | ▸ aisAlarmIncrements | | local |
| □ | ▸ carrier | Serial Carrier Problems | local |
| □ | ▸ clearToSendIsDown | | local |
| □ | ▸ consoleHung | System cannot talk to the device | local |
| □ | ▸ cpuFiveMinuteAverageGreaterThan90 | CPU Five Minute Average Load Greater Than 90% | local |
| □ | ▸ cpuOneMinuteAverageGreaterThan90 | CPU One Minute Average Load Greater Than 90% | local |
| □ | ▸ currentErroredSecondsIncrements | | local |

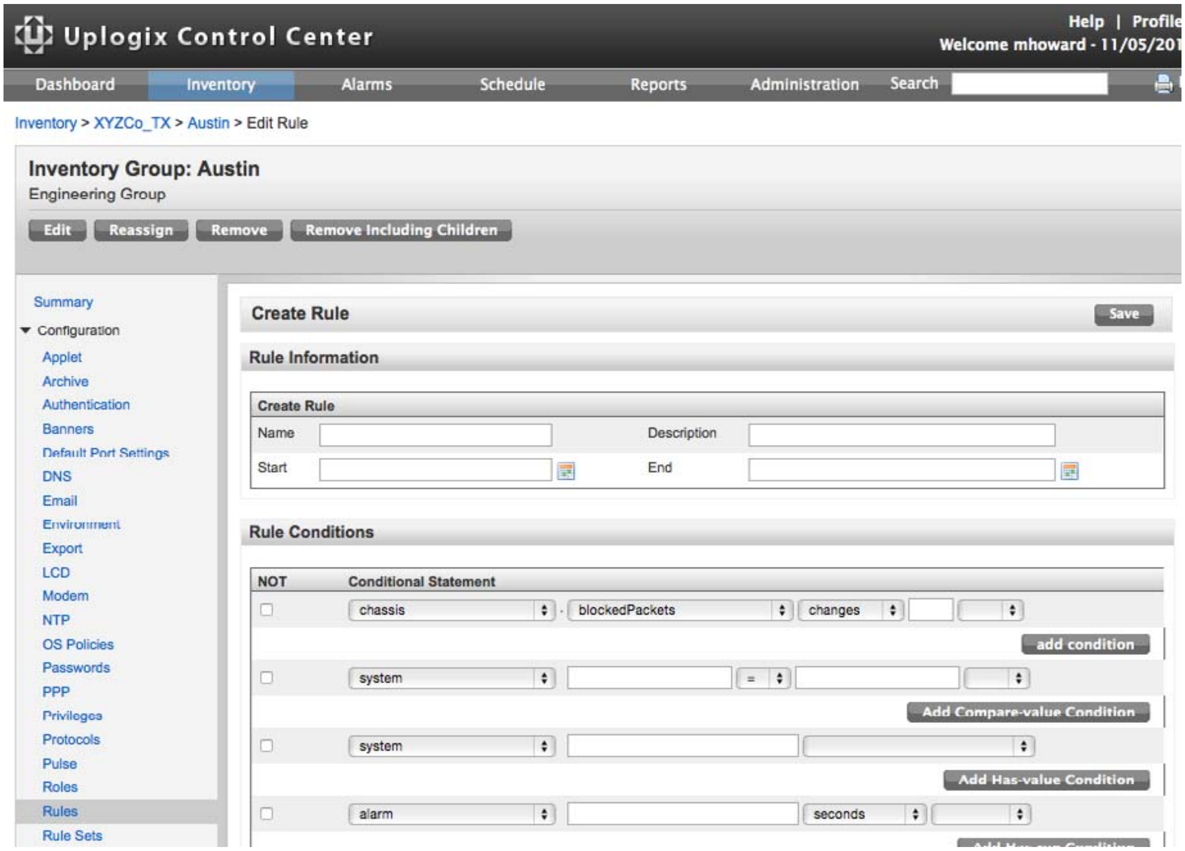
45 items found, displaying 1 to 10. (0 currently selected.)

[First/Prev] 1, 2, 3, 4, 5 [Next/Last]

Click **Add** to create a new rule. This is equivalent to issuing the `config rule` command from the LMS command line.

Do not use spaces in the rule name.

The Edit Rule page contains drop-down menus and lists of the same options available from the rules editor within the LMS command line.

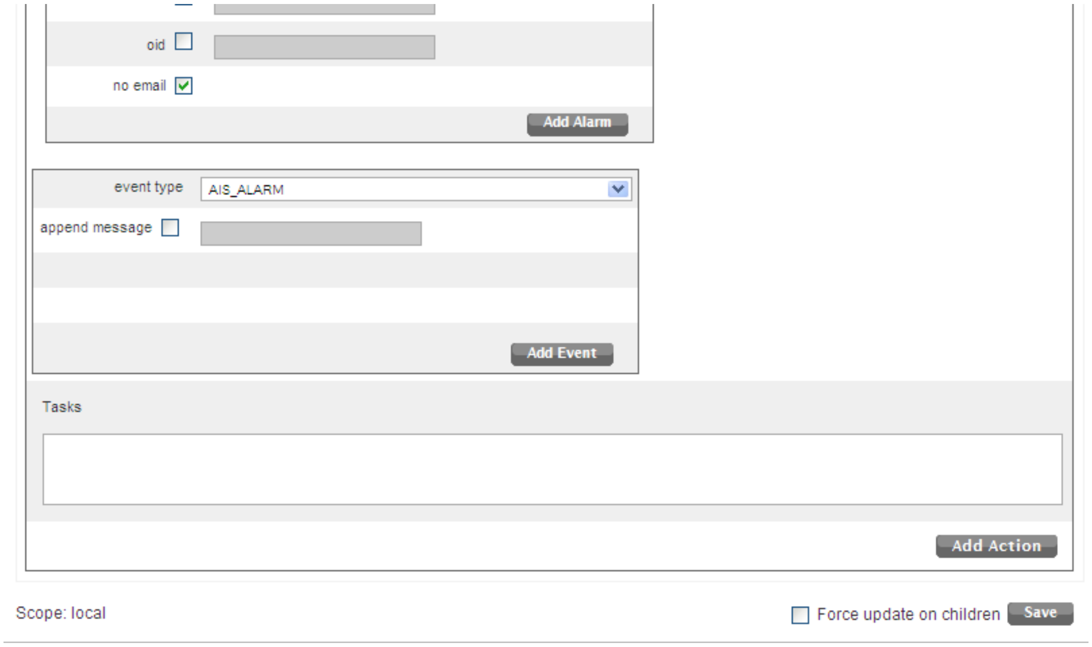


| NOT | Conditional Statement |
|---|---|
| □ | chassis . blockedPackets changes |
| □ | system = |
| □ | system |
| □ | alarm seconds |

Edit conditions manually in the Conditions text box or add a new condition using the drop-down menus shown below. Four different menu sets cover the condition types for rules. As each condition is added, the text changes to reflect the new conditions.

Alarms and events are defined using drop-down items and free text fields.

Tasks can be manually edited or specified with the selections on this page.


oid □

no email ☑

event type AIS_ALARM

append message □

Tasks

Scope: local

□ Force update on children

Click **Save** at the bottom of the page to create the rule. Select **Force update on children** to force Local Managers to update a previously inherited rule.

Consult the *Guide to Rules and Monitors* for more information on creating rules.

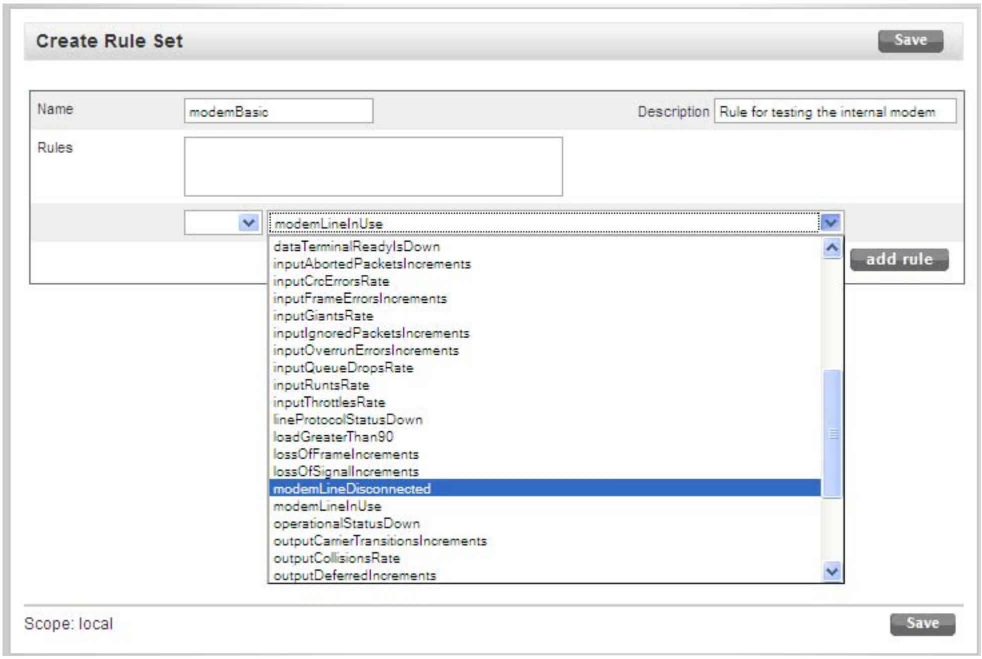
Reference information is available at support.uplogix.com and includes rule examples, default rules, and condition variables.

## Working with rule sets

**Inventory > Configuration > Rule Sets**

Some rules are often used together. Therefore, it may be convenient to group them into rule sets. When creating monitors, available rules and rule sets are presented together.

1. Click **Rule Sets** from the Configuration menu on a group detail or Local Manager detail page.
2. Existing rule sets are listed on the View Rule Sets page. To create a rule set, click **Add**.
3. In the Create Rule Set screen, provide a name and (optionally) a brief description for the rule set.



Create Rule Set

Name: modemBasic

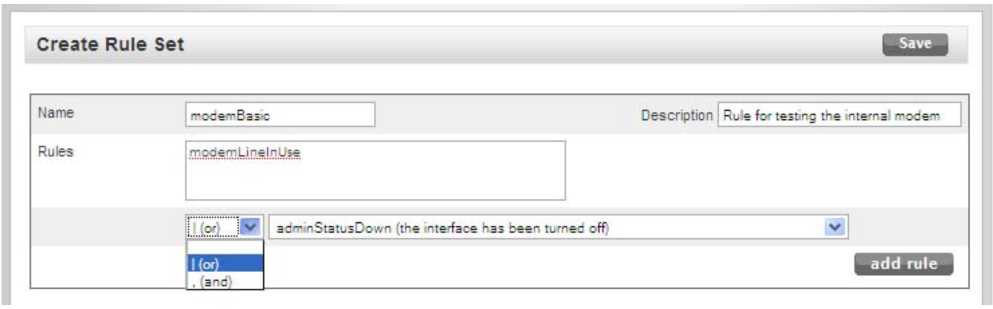
Description: Rule for testing the internal modem

Rules:

modemLineInUse

Scope: local

4. Select the first rule from the list of available rules, and click **add rule**.
5. Select the relationship (AND; OR) of the first rule to the second rule from the list to the left, then select the second rule.



Create Rule Set

Name: modemBasic

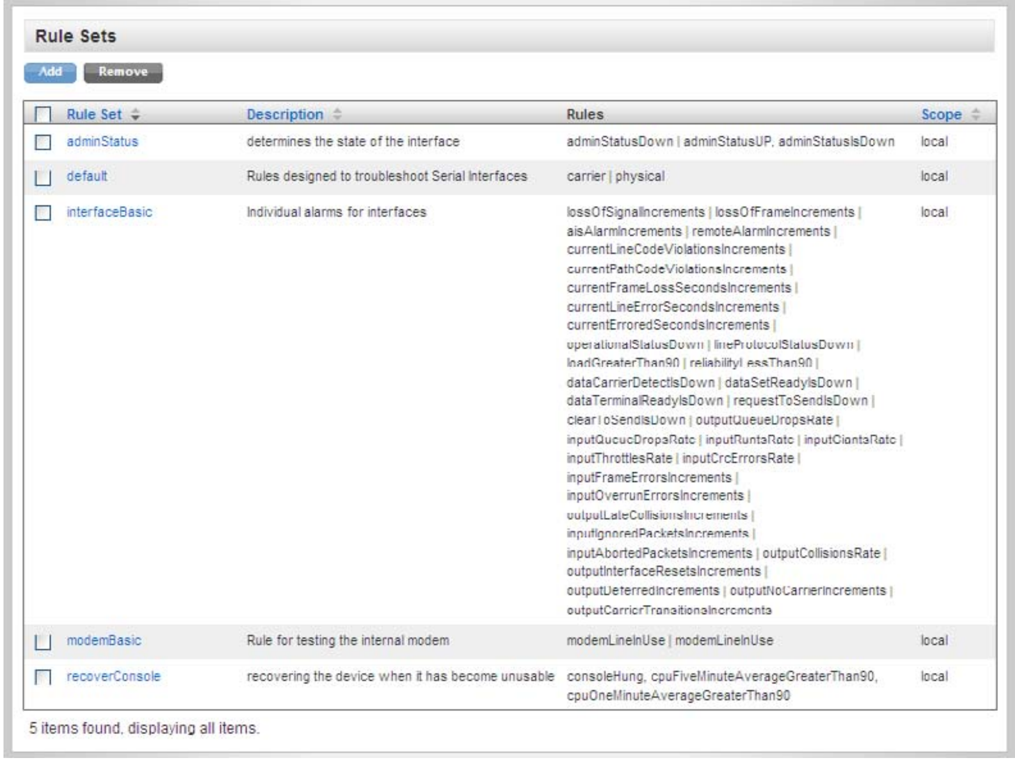
Description: Rule for testing the internal modem

Rules: modemLineInUse

| (or)

adminStatusDown (the interface has been turned off)

6. Continue until all the desired rules have been added to the rule set. Click **Save** to save the rule set. The new rule set is listed on the View Rule Sets page.



**Rule Sets**

| ☐ | Rule Set | Description | Rules | Scope |
|---|---|---|---|---|
| ☐ | adminStatus | determines the state of the interface | adminStatusDown \| adminStatusUP, adminStatusIsDown | local |
| ☐ | default | Rules designed to troubleshoot Serial Interfaces | carrier \| physical | local |
| ☐ | interfaceBasic | Individual alarms for interfaces | lossOfSignalIncrements \| lossOfFrameIncrements \| aisAlarmIncrements \| remoteAlarmIncrements \| currentLineCodeViolationsIncrements \| currentPathCodeViolationsIncrements \| currentFrameLossSecondsIncrements \| currentLineErrorSecondsIncrements \| currentErroredSecondsIncrements \| operationalStatusDown \| lineProtocolStatusDown \| loadGreaterThan90 \| reliabilityLessThan90 \| dataCarrierDetectIsDown \| dataSetReadyIsDown \| dataTerminalReadyIsDown \| requestToSendIsDown \| clearToSendIsDown \| outputQueueDropsRate \| inputQueueDropsRate \| inputRuntsRate \| inputGiantsRate \| inputThrottlesRate \| inputCrcErrorsRate \| inputFrameErrorsIncrements \| inputOverrunErrorsIncrements \| outputLateCollisionsIncrements \| inputIgnoredPacketsIncrements \| inputAbortedPacketsIncrements \| outputCollisionsRate \| outputInterfaceResetsIncrements \| outputDeferredIncrements \| outputNoCarrierIncrements \| outputCarrierTransitionsIncrements | local |
| ☐ | modemBasic | Rule for testing the internal modem | modemLineInUse \| modemLineInUse | local |
| ☐ | recoverConsole | recovering the device when it has become unusable | consoleHung, cpuFiveMinuteAverageGreaterThan90, cpuOneMinuteAverageGreaterThan90 | local |

5 items found, displaying all items.

## Promoting rules and rule sets

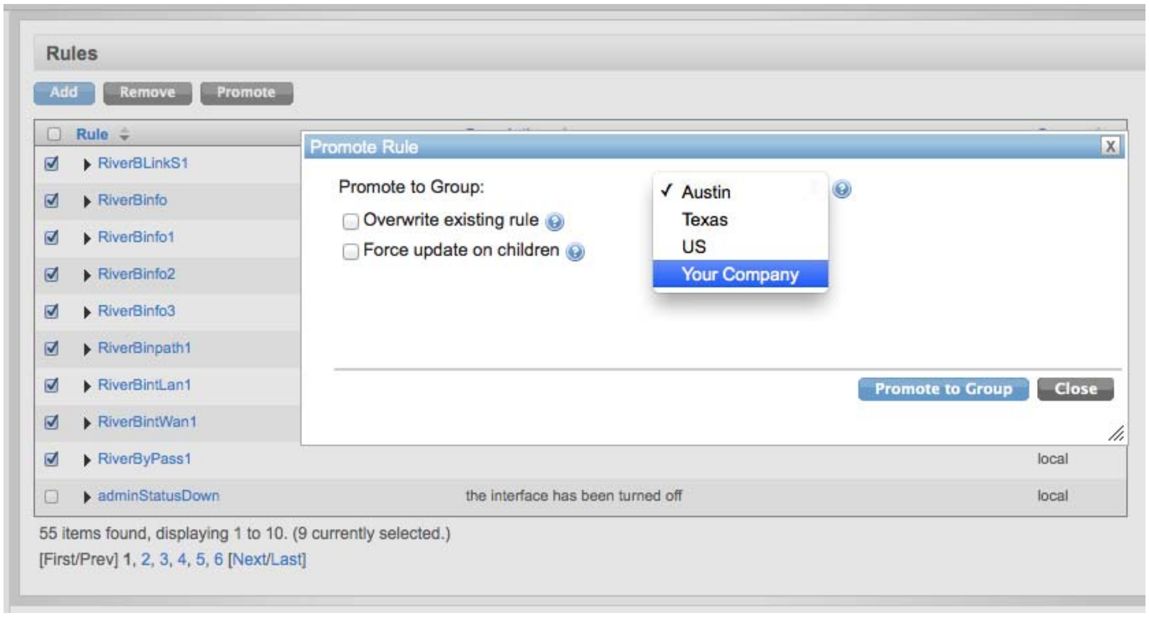
**Inventory > Configuration > Rules**

**Inventory > Configuration > Rule Sets**

Rules can be promoted to different levels in the inventory hierarchy using the promote feature. Select the rule(s) for promotion and click the **Promote** button. Select the inventory group level to promote the rule(s) and make appropriate promotion selections:

- **Overwrite existing rule**: Overwrites rule(s) with the same name in the inventory group level where you are promoting a rule(s).
- **Force update on children**: Overwrites rule(s) with the same name in all inventory groups and Local Managers below the selected group.

When finished with selections, click the **Promote to Group** button.



| ☐ | Rule | | |
|---|---|---|---|
| ☑ | RiverBLinkS1 | | |
| ☑ | RiverBinfo | | |
| ☑ | RiverBinfo1 | | |
| ☑ | RiverBinfo2 | | |
| ☑ | RiverBinfo3 | | |
| ☑ | RiverBinpath1 | | |
| ☑ | RiverBintLan1 | | |
| ☑ | RiverBintWan1 | | |
| ☑ | RiverByPass1 | | local |
| ☐ | adminStatusDown | the interface has been turned off | local |

55 items found, displaying 1 to 10. (9 currently selected.)

[First/Prev] 1, 2, 3, 4, 5, 6 [Next/Last]

Promote Rule

Promote to Group: ✓ Austin

☐ Overwrite existing rule

☐ Force update on children

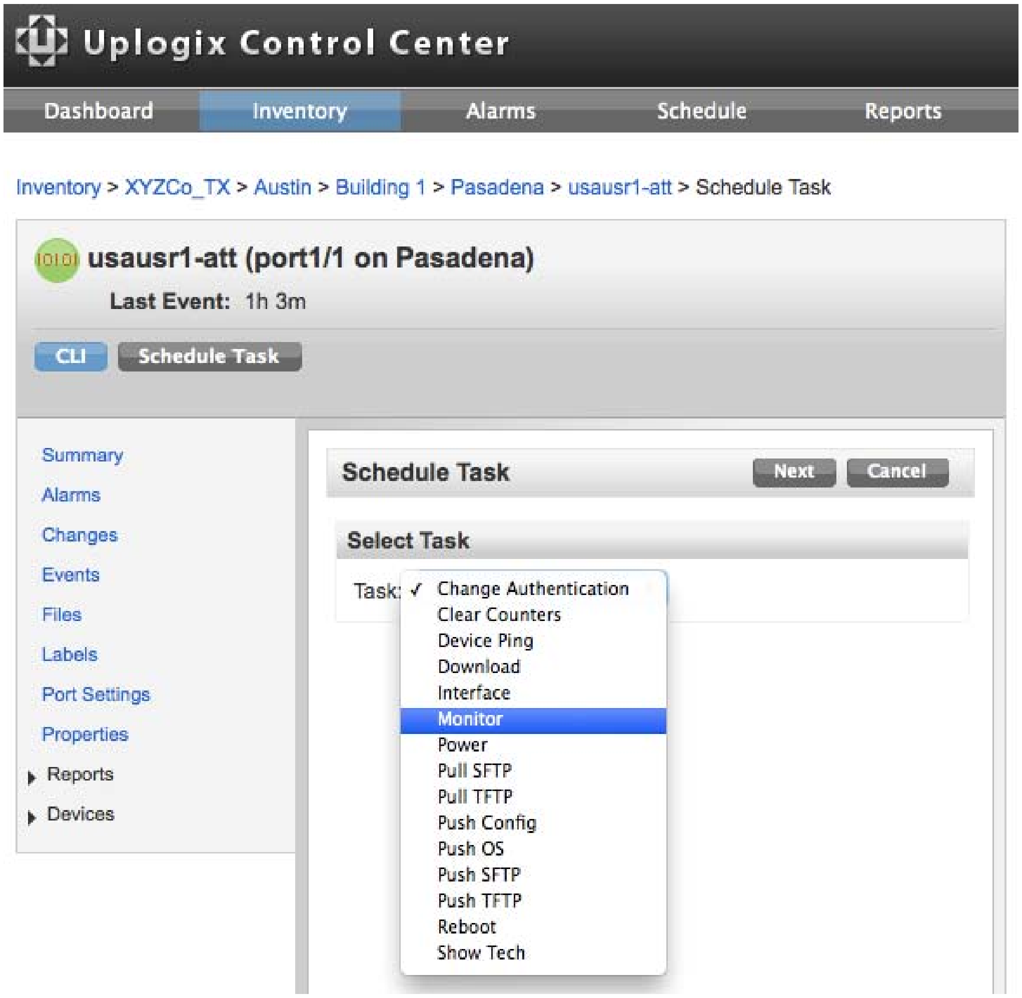
## Scheduling monitors

**Inventory > Local Manager > Port > Schedule Task**

A monitor is a type of scheduled task. Monitors gather data and may apply rules to interpret and respond to the data. Monitors are created from the port pages on individual Local Managers.

To create a monitor:

1. Go to **Inventory > Local Manager > Port >** and click **Schedule Task** to open the Schedule Task page.
2. Select or create a filter to specify what equipment is monitored.
3. Select **Monitor** from the list of tasks and click **Next**.

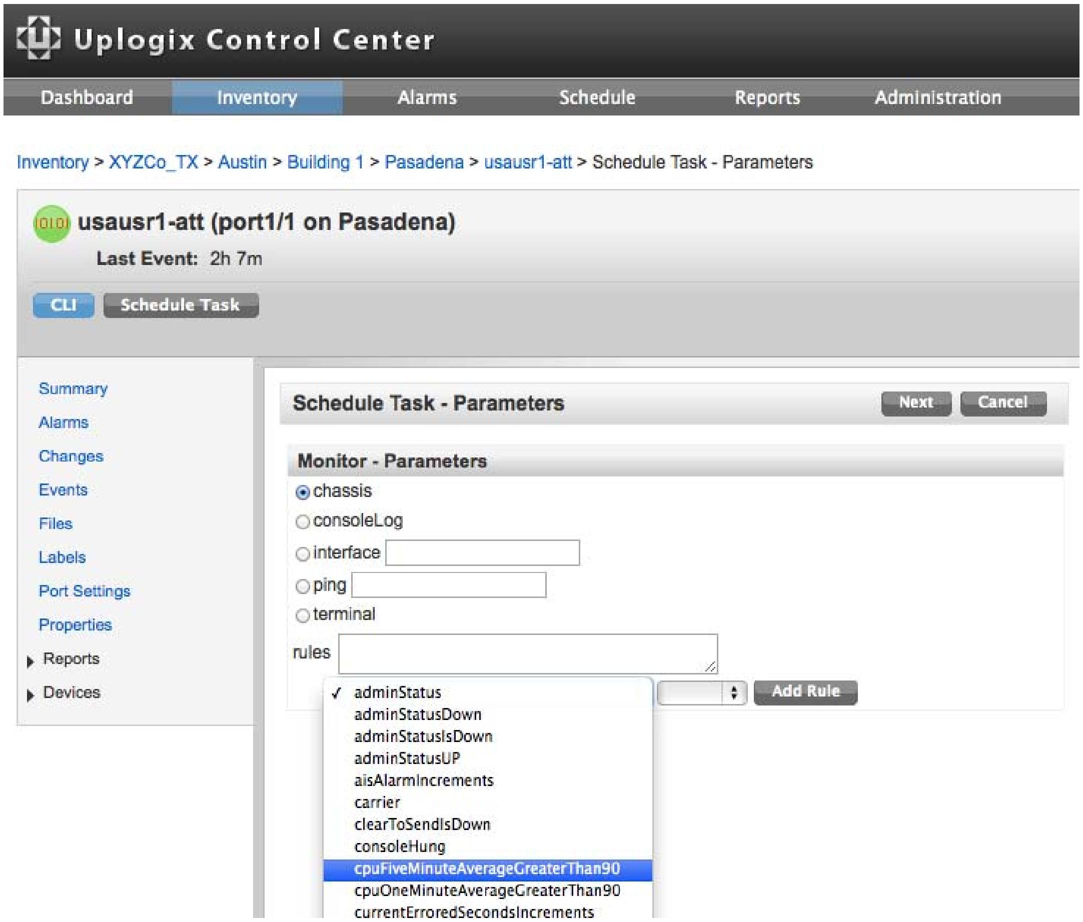


4. On the Monitor - Parameters page, choose the type of monitor. If it is an interface monitor, specify the interface to be monitored - for example, GigabitEthernet0/1.

5. The monitor can be set up without adding rules. The Local Manager gathers and stores the data without acting on it. To do this, click **Next** to go to the scheduling page.

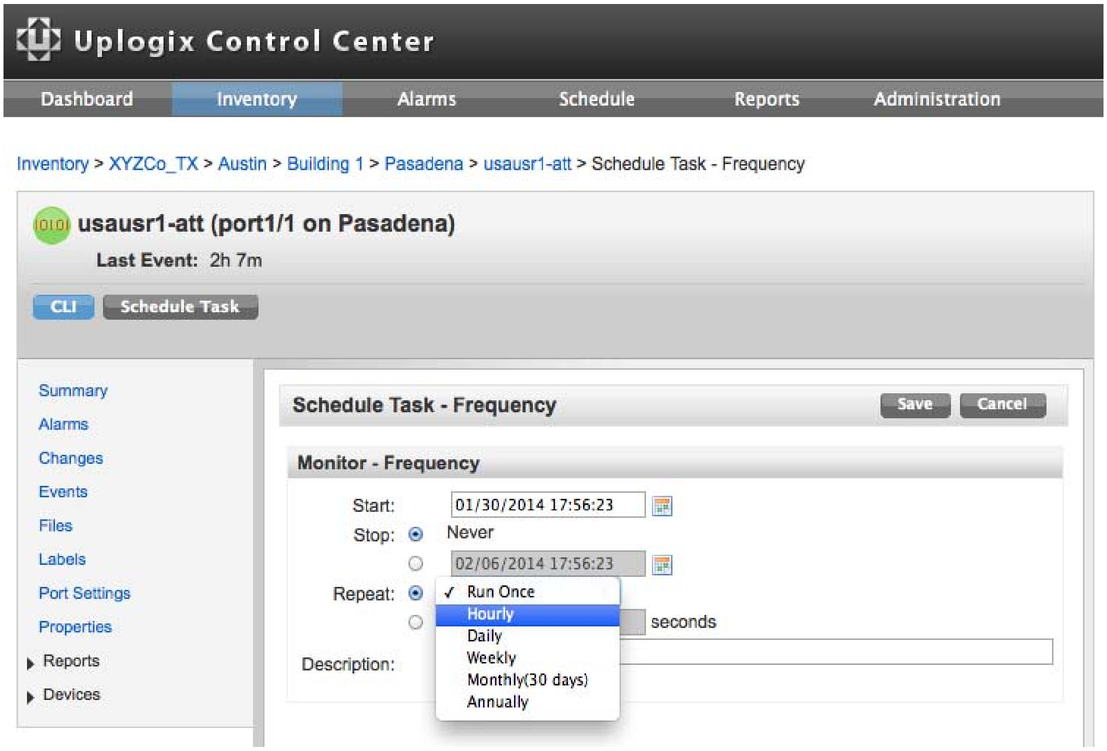
6. To create a monitor that uses rules to interpret and respond to the data as it is gathered, select a rule from the list of available rules and click **Add Rule**.

7. To add another rule, select the rule and its relation to the rule already added. Then click **Add Rule**.



8. On the Monitor - Frequency page, specify the schedule for this monitor and optionally provide a brief description.

9. Click **Save**. The monitor runs as scheduled and appears on the Scheduled Tasks page.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > usausr1-att > Schedule Task - Frequency

usausr1-att (port1/1 on Pasadena)

Last Event: 2h 7m

Schedule Task - Frequency

Monitor - Frequency

Start: 01/30/2014 17:56:23

Stop: ● Never

○ 02/06/2014 17:56:23

Repeat: ● ✓ Run Once

○ seconds

Description:

The default interval for monitors is 30 seconds. However, this interval can be changed.

### Canceling monitors

To cancel a monitor:

1. Go to the Scheduled tasks page.
2. Locate the monitor to be canceled and click the **cancel** link. The canceled monitor continued to be shown but is struck out on the Scheduled tasks list.

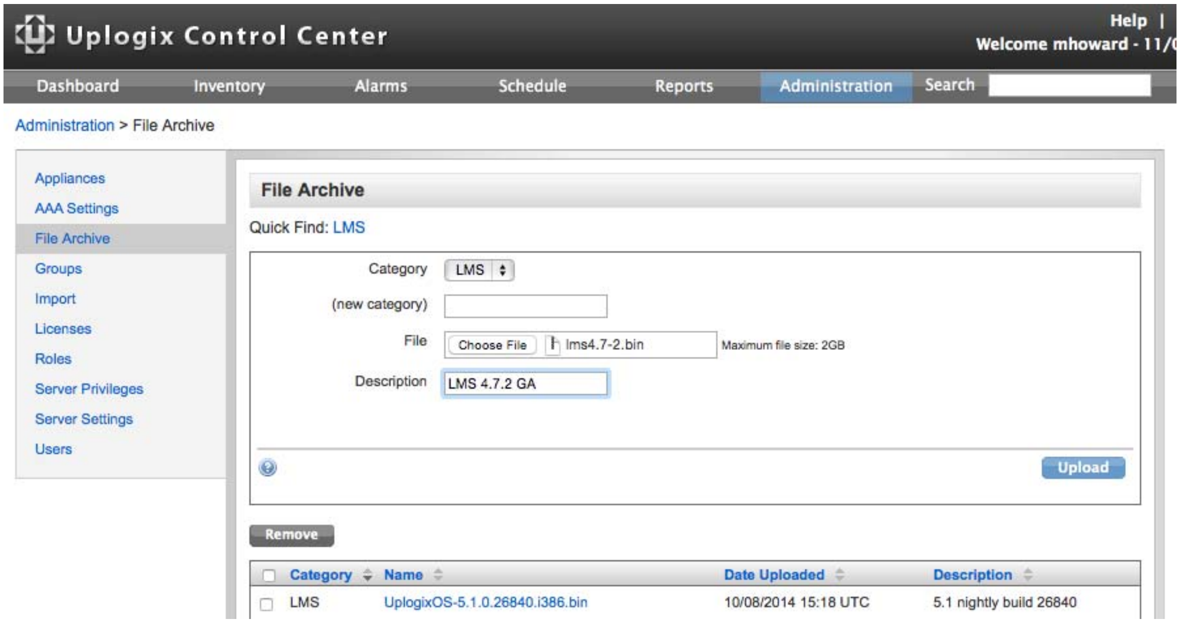
## Creating standard operating system policies

**Inventory > Local Manager or Inventory Group Page > Configuration > OS Policies**

The standard operating system policy feature allows network administrators to define an operating system standard for managed devices on a per make/model basis. Once the standard is defined at the inventory group or Local Manager level, the operating system file will be pushed to all applicable managed devices and stored locally as a specially named file called *standard*. If the current OS for a managed device deviates from its defined standard, the Control Center will alarm and potentially recover the device to the standard operating system.

## Defining the standard operating system

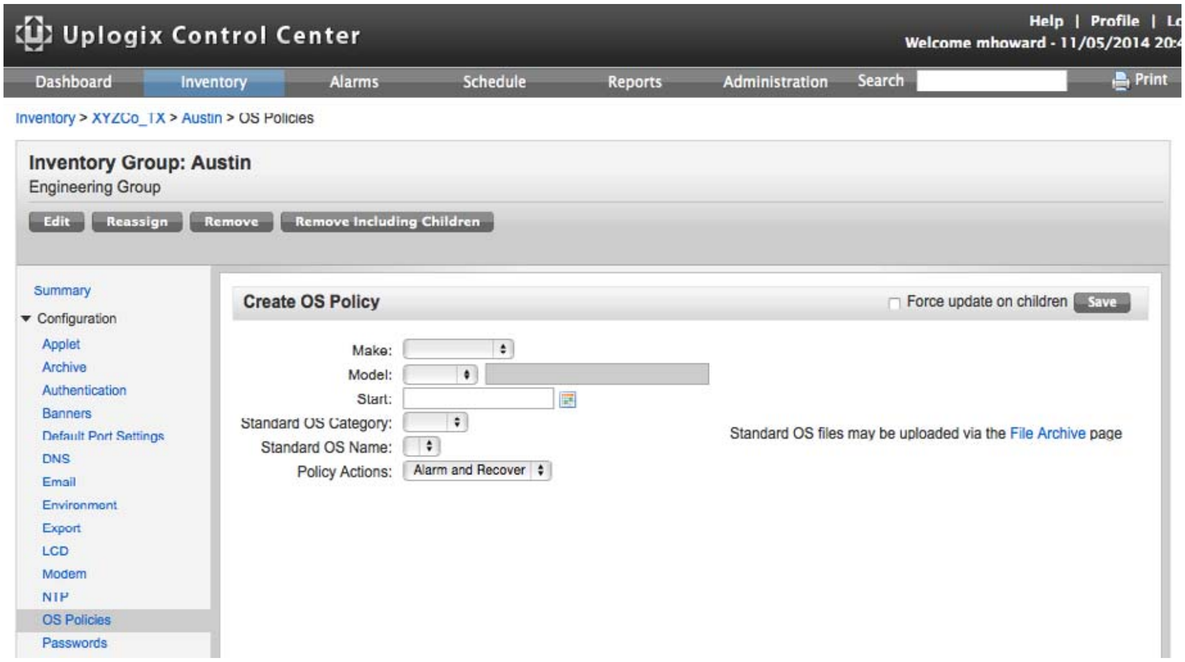
Begin by uploading the standard operating system file to the File Archive by clicking on the Upload Standard OS button. Be sure to include a file category.



| | |
|---|---|
| Category | LMS |
| (new category) | |
| File | lms4.7-2.bin — Maximum file size: 2GB |
| Description | LMS 4.7.2 GA |

| ☐ | Category | Name | Date Uploaded | Description |
|---|---|---|---|---|
| ☐ | LMS | UplogixOS-5.1.0.26840.i386.bin | 10/08/2014 15:18 UTC | 5.1 nightly build 26840 |

Next, navigate to the Local Manager or Inventory Group page where the operating system standard will be defined. Select OS Policies on the Configuration menu. Click add to create a new OS Policy.



Inventory Group: Austin

Engineering Group

| | |
|---|---|
| Make: | |
| Model: | |
| Start: | |
| Standard OS Category: | |
| Standard OS Name: | |
| Policy Actions: | Alarm and Recover |

Standard OS files may be uploaded via the File Archive page

Complete the policy information:

- **Make**: Make of the device where a standard operating system file will be applied.
- **Model**: Existing models are listed based on model types in the database, but new models can be entered when a user selects the Other type. User-provided model types do not support wildcard entries.
- **Start**: The date at which the operating system policy will be implemented/activated.
- **Standard OS Category**: The category type of the previously uploaded standard operating system file in the Control Center File Archive.
- **Standard OS Name**: The name of the previously uploaded standard operating system file in the Control Center File Archive.
- **Policy Actions**:
  - **Disabled**: Turn off recovery and alarming for a standard operating system policy after the policy has been implemented. The standard operating system file will still be stored as Standard on Local Managers affected by the policy.
  - **Alarm**: Alarm when the current operating system for a managed device does not match the operating system associated with the policy.
  - **Alarm & Recover**: Alarm and implement an automated recovery when a managed device does not meet the operating system policy. This action is available only for Cisco equipment running IOS or IOS-XE, where the operating system will only be recovered when the device is found without a configuration (such as when replacing a failed managed device with a new and unconfigured one).

Click **Save** to implement the operating system policy.

Once the operating system policy has been saved, the Control Center will begin staging the standard operating system file on the affected Local Managers.

### Standard operating system recovery

In most cases, the operating system policy will result in alarm when managed device's operating system does not match the standard. In the case of Cisco equipment running IOS or IOS-XE software, the Uplogix can be configured to automatically recover the managed device to the defined operating system standard.

## Applet manual out-of-band modem connectivity via the "Dial" button

**Inventory > Local Manager Page > Configuration > Modem**

This functionality executes a Java applet on the user's workstation to connect asynchronously to a Local Manager's modem.

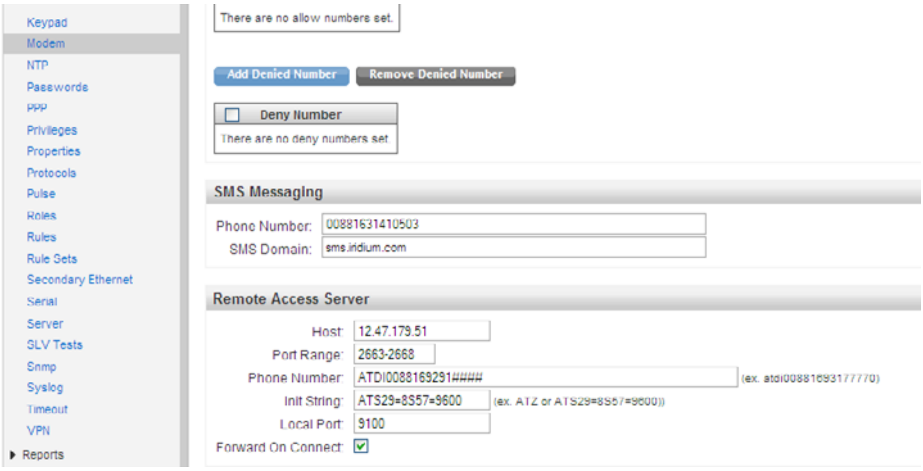
If a circuit-switched service is available on the modem (POTS line or Iridium modem with voice service), an access server with modems can be configured to dial from the Control Center Java applet into the Local Manager to establish a TTY (teletype) session.

Requirements for using this capability are:

- The Local Manager uses a circuit switched modem such as V.92 or Iridium.
- The Local Manager has been configured to accept incoming calls, and a list of permitted source phone numbers has been defined. These settings are configured with the `config answer` command.

In the example below, a Cisco router is configured as a Remote Access Server (RAS) for the Dial Applet to connect to the Local Manager. From the Local Manager configuration menu, select **Modem** and enter the RAS information.

- Host: IP address or DNS Name of the RAS. In the example below, the Iridium AS5350 gateway has been entered.
- Port Range: Port range assigned by host for remote access, or the ports on the access server that map to the modems.
- Phone Number: Enter the command for dialing (ATDI/ATDT/ATD) and the phone number with no spaces.
- Init String: Enter an optional initialization string with no spaces.
- Local Port: Local port on the workstation to be used with Forward on Connect.
- Forward on Connect: Check this box to forward the terminal session upon connection.



There are no allow numbers set.

□ Deny Number

There are no deny numbers set

SMS Messaging

Phone Number: 00881631410503

SMS Domain: sms.iridium.com

Remote Access Server

Host: 12.47.179.51

Port Range: 2663-2668

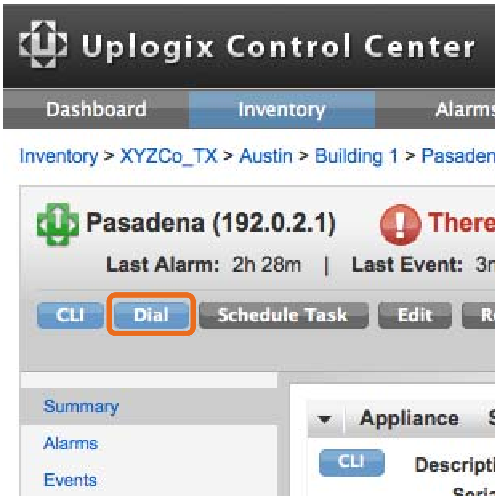
Phone Number: ATDI0088169291#### (ex. atdi00881693177770)

Init String: ATS29=8S57=9600 (ex. ATZ or ATS29=8S57=9600))

Local Port: 9100

Forward On Connect: ☑

Once the access server information has been configured (in the Remote Access Server section), a blue Dial button appears in the Control Center. Click the Dial button to connect to the Local Manager via out-of-band, circuit switched phone number.



The Control Center Dial applet connects to the modem server with the information pre-programmed in the RAS section of the Local Manager Modem configuration.

# Managing accounts and security

The Control Center manages accounts, privileges, and authentication in much the same way that the Local Manager does. User and group accounts created on the server are inherited by managed Local Managers. Managing users and account security from the Control Center ensures consistency over your entire deployment.

CAUTION Accounts created on the Local Manager are deleted when it contacts the Control Center.

In this chapter:

- Managing authentication—specify how users authenticate; set password requirements
- Working with user and group accounts—create, edit, disable, and delete accounts
- Managing privileges—control what each user can do on the Control Center and the Local Managers it manages
- Importing user, group, and privilege files—automate account and privilege setup

## Managing authentication

**Administration > AAA Settings**

**Inventory > Local Manager Detail > Configuration > Authentication**

The Control Center and Local Managers can perform user authentication, authorization, and accounting (AAA) functions locally or these functions can be deferred to one or more third-party AAA servers.

This section covers the following topics:

- Setting authentication requirements globally or within the inventory
- Authentication, authorization, and accounting (AAA) settings
- Setting requirements for strong passwords

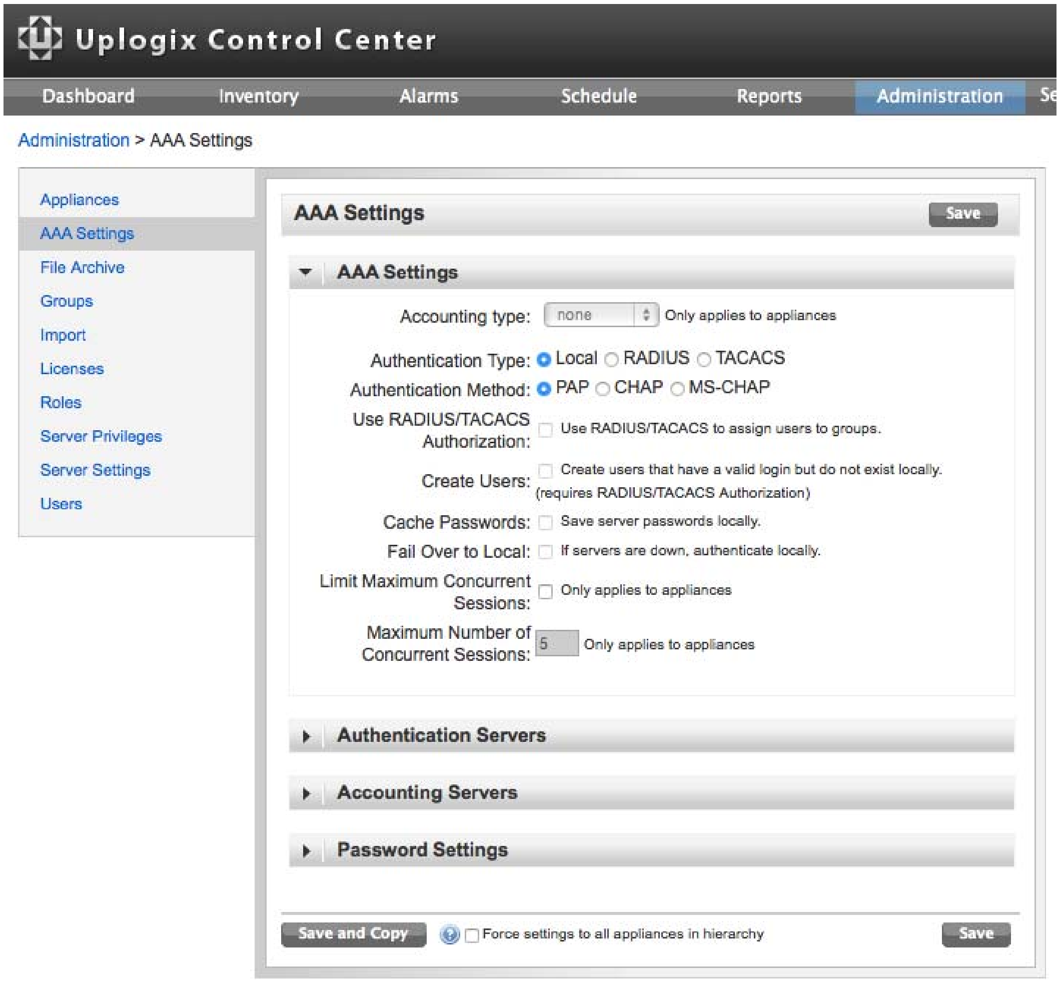
## Setting authentication globally or within the inventory

Authentication/authorization/accounting settings for the Control Center can be managed globally from the AAA Settings page under the Administration tab. They can also be customized for specific portions of the deployment (i.e., Local Managers) from the appropriate group within the inventory.

### Setting authentication globally or on the Control Center only

To configure AAA settings for the Control Center, and optionally for the entire inventory, go to **AAA Settings** under the Administration tab.

This page also includes strong password settings and other password-related settings such as lockout after login failure.



Accounting type: none Only applies to appliances

Authentication Type: ● Local ○ RADIUS ○ TACACS

Authentication Method: ● PAP ○ CHAP ○ MS-CHAP

Use RADIUS/TACACS Authorization: □ Use RADIUS/TACACS to assign users to groups.

Create Users: □ Create users that have a valid login but do not exist locally. (requires RADIUS/TACACS Authorization)

Cache Passwords: □ Save server passwords locally.

Fail Over to Local: □ If servers are down, authenticate locally.

Limit Maximum Concurrent Sessions: □ Only applies to appliances

Maximum Number of Concurrent Sessions: 5 Only applies to appliances

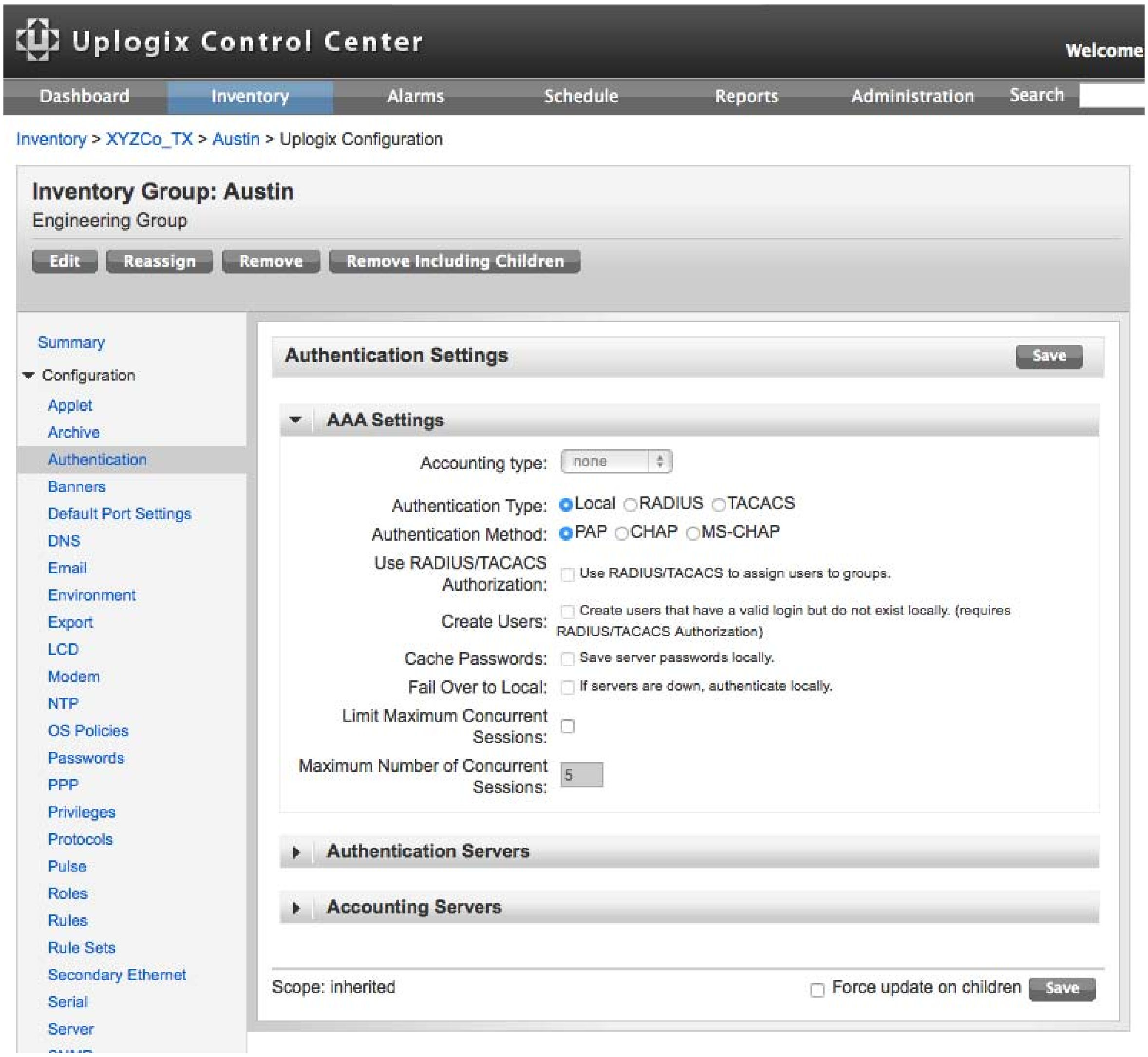
□ Force settings to all appliances in hierarchy

For information on configuring accounting and authentication, see Authentication, authorization, and accounting (AAA) settings.

- To apply changes on this page to the Control Center only, click **Save**.
- To copy the changes on this page to the root-level inventory group, click **Save and Copy**. Like other inventory settings, the authentication settings do not overwrite existing locally created settings unless you force them to do so. It will overwrite changes made in the top level of the hierarchy, but not those made in child groups.
- To force the changes on this page on all Local Managers managed by this Control Center, select **Force settings to all appliances in hierarchy** before clicking **Save and Copy**.

## Setting authentication within an inventory group

To configure AAA settings for an inventory group, open the detail page for that group and click **Authentication** from the Configuration menu to open the Authentication Settings page.



Inventory Group: Austin
Engineering Group

Authentication Settings

AAA Settings

Accounting type: none

Authentication Type: ● Local ○ RADIUS ○ TACACS

Authentication Method: ● PAP ○ CHAP ○ MS-CHAP

Use RADIUS/TACACS Authorization: □ Use RADIUS/TACACS to assign users to groups.

Create Users: □ Create users that have a valid login but do not exist locally. (requires RADIUS/TACACS Authorization)

Cache Passwords: □ Save server passwords locally.

Fail Over to Local: □ If servers are down, authenticate locally.

Limit Maximum Concurrent Sessions: □

Maximum Number of Concurrent Sessions: 5

Scope: inherited

□ Force update on children

Settings available on the Uplogix Configuration page are inherited by all the members of this inventory group, except where they would overwrite existing, locally configured settings. Select **Force update on children** to overwrite all existing settings.

For information on configuring accounting and authentication, see Authentication, authorization, and accounting (AAA) settings.

## Setting authentication for a single Local Manager

To configure AAA settings for a single Local Manager, navigate to the Local Manager and select **Authentication** from the **Configuration** menu.

## Authentication, authorization, and accounting (AAA) settings

**Administration > AAA Settings**

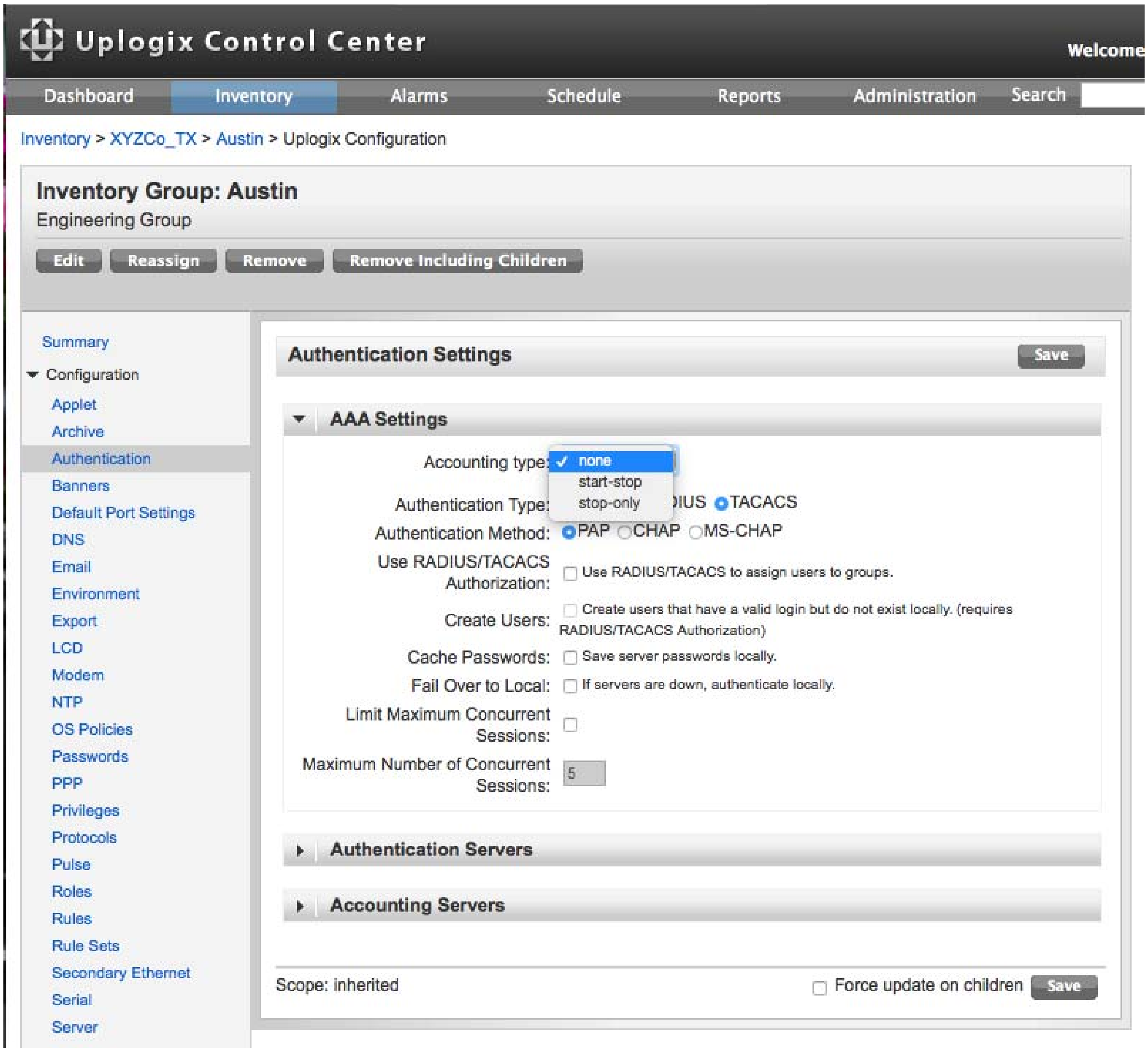
**Inventory > Group Detail > Configuration > Authentication**

**Inventory > Local Manager > Configuration > Authentication**

Authentication/authorization/accounting settings can be managed globally from the AAA Settings page under the **Administration** tab. They can also be customized for specific portions of the deployment from the appropriate group or Local Manager within the inventory. Navigate to the appropriate page to configure AAA settings.

### Accounting settings

Accounting events can be sent to a configured TACACS or RADIUS server using the start-stop (before and after each command) or the stop-only (after each command) model. This setting is not available if local authentication is used. Accounting applies to Local Managers only; however, you can set it for all Local Managers by navigating to **Administration > AAA Settings**.



Inventory > XYZCo_TX > Austin > Uplogix Configuration

Inventory Group: Austin

Engineering Group

Authentication Settings

AAA Settings

Accounting type: ✓ none / start-stop / stop-only

Authentication Type: IUS ● TACACS

Authentication Method: ● PAP ○ CHAP ○ MS-CHAP

Use RADIUS/TACACS Authorization: □ Use RADIUS/TACACS to assign users to groups.

Create Users: □ Create users that have a valid login but do not exist locally. (requires RADIUS/TACACS Authorization)

Cache Passwords: □ Save server passwords locally.

Fail Over to Local: □ If servers are down, authenticate locally.

Limit Maximum Concurrent Sessions: □

Maximum Number of Concurrent Sessions: 5

Scope: inherited

□ Force update on children

## Managing the Local Managers' admin account

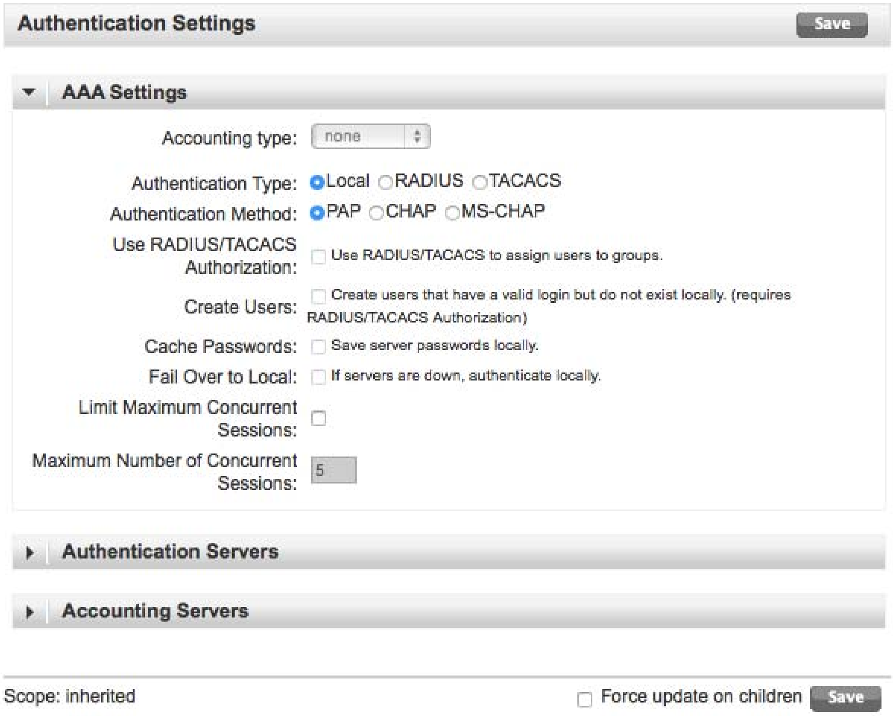
**Administration > AAA Settings**

For security, the default admin account that is part of every Local Manager’s factory configuration is managed by the Control Center when a Local Manager is pointed to a Control Center. If an admin user already exists in the Control Center, the default password will be overwritten with the admin password in the Control Center.

The admin account is editable in the list of users on the **Administration > Users** page, providing a simple way to change the admin password on all Local Managers or otherwise modify this account.

## Authentication settings

Most authentication settings available through the Control Center mirror those available through the `config system authentication` command in the Uplogix LMS command line. They include the ability to select the type of authentication, to specify the necessary configuration information for each type, and to limit the number of concurrent sessions per account.



Authentication Settings

▾ AAA Settings

Accounting type: none

Authentication Type: ● Local ○ RADIUS ○ TACACS

Authentication Method: ● PAP ○ CHAP ○ MS-CHAP

Use RADIUS/TACACS Authorization: □ Use RADIUS/TACACS to assign users to groups.

Create Users: □ Create users that have a valid login but do not exist locally. (requires RADIUS/TACACS Authorization)

Cache Passwords: □ Save server passwords locally.

Fail Over to Local: □ If servers are down, authenticate locally.

Limit Maximum Concurrent Sessions: □

Maximum Number of Concurrent Sessions: 5

▸ Authentication Servers

▸ Accounting Servers

Scope: inherited

□ Force update on children

All authentication settings available at the individual Local Manager level are also available at the inventory group level and globally. Some additional settings are available at the inventory group or global levels.

- Authentication Type and Method: Select the type of authentication to use. Local, RADIUS, and TACACS are available. If using TACACS or RADIUS, select the authentication method as well. PAP, CHAP, and MS-CHAP are available.

> If the Control Center is configured to use one or more authentication servers, or accounting servers, the managed Local Managers can use the same servers, if desired. Optionally the Control Center will maintain password synchronization with AAA servers and distribute changes to each Local Manager as they are updated.

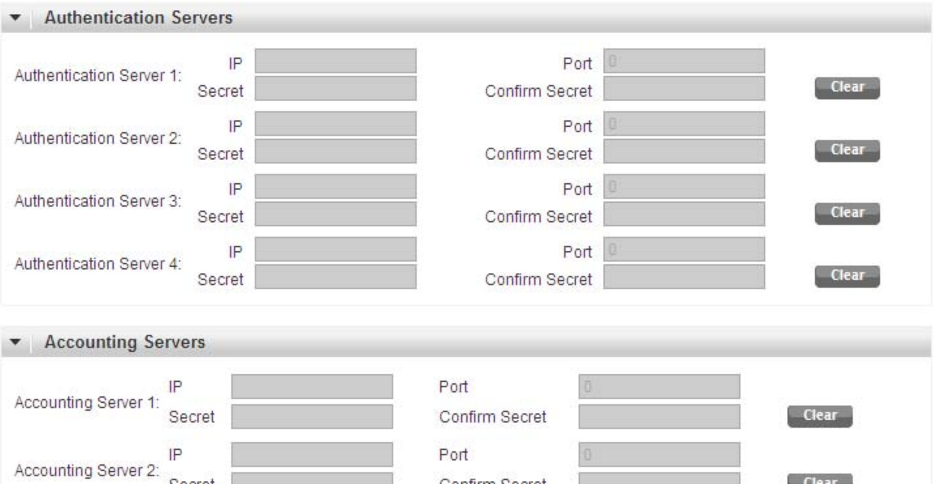
- Use RADIUS/TACACS Authorization: Some AAA servers support returning authorization keys that can be used by the Control Center to assign privileges to users. For information on configuring this, see Using RADIUS/TACACS to manage privileges.
- Create Users: If users are managed on the authentication server, they are able to authenticate but may not have accounts on the Control Center or Local Manager. If this setting is enabled, the user is created if they do not exist. If RADIUS/TACACS authorization is not used, users initially have no privileges - so they are not able to log in, as this requires the `login` privilege.
- Cache Passwords: Enable this setting if the Control Center is configured to use authentication server(s) and Fail Over to Local is selected. This allows users to use a previously saved password if no authentication server is available and the Control Center fails over to local authentication.
- Fail Over to Local: Enable this setting to allow the Control Center to authenticate users locally when no configured authentication server is available. When using this setting, enable Cache Passwords to make the passwords available for local authentication.
- Limit Maximum Concurrent Sessions and Maximum Number of Concurrent Sessions: These settings allow you to limit the number of open sessions that any user may have on any particular Local Manager at a given time. Set the maximum number to 0 to allow unlimited concurrent sessions.

## Authentication and accounting servers

If the Control Center or Local Managers are configured within the inventory to use RADIUS or TACACS, at least one of the appropriate type of server must be configured. Up to four authentication servers and up to four accounting servers can be specified for redundancy. All must be of the same type, either RADIUS or TACACS. If an authentication server fails to respond, the next server is queried; the first response determines whether the authentication is successful.

For each server, enter the IP address and port; then enter and confirm the secret. For RADIUS servers, the default port is 1645 or 1812; for TACACS, the default port is 49.

To remove server information already configured, click the **Clear** button associated with that server.



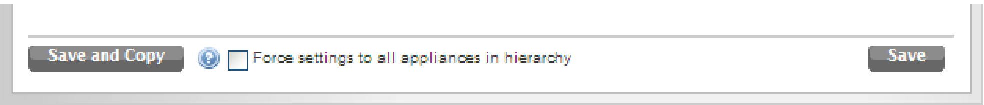
Port: 0

## Choosing how to apply AAA changes

When making changes on the **Administration > AAA** page, apply them in three ways:

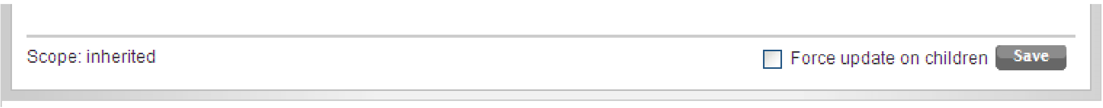
- Update AAA settings only on the Control Center—click **Save**.
- Update AAA settings on the Control Center and at the root level of the inventory without changing settings on Local Managers currently in the inventory—click **Save and Copy**.

- Update AAA settings globally, overwriting existing settings on the Control Center and all Local Managers—select **Force settings to all appliances in hierarchy**, then click **Save and Copy**.



When making changes at the inventory group level from the Authentication page, apply them without changing settings on Local Managers currently in the group or overwrite the Local Managers' authentication settings.

- Update AAA settings for the group without changing settings on Local Managers currently in the inventory—click **Save**.
- Update AAA settings for the group, overwriting existing settings on all Local Managers in the group and its child groups—select **Force updates on children**, then click **Save**.



## Setting requirements for strong passwords

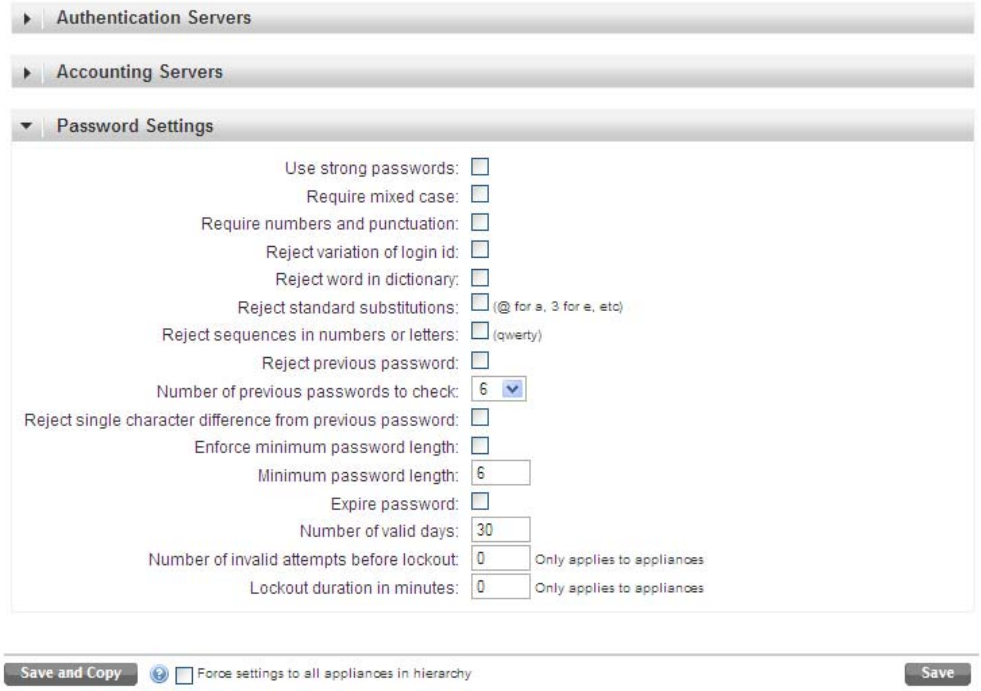
Configure strong passwords at any level within the inventory, on the Control Center only, or globally. The password requirements can be tailored separately for different groups or Local Managers within the deployment. For a detailed description of how to apply settings globally or within a subset of the deployment, see Setting authentication globally or within the inventory.

Global or Control Center only: **Administration > AAA Settings**

Inventory group: **Inventory > Group Detail > Configuration > Passwords**

Single Local Manager: **Inventory > Local Manager> Configuration > Passwords**

For password restrictions to take effect, **Use Strong Passwords** must be selected. To remove strong password restrictions temporarily, clear **Use Strong Passwords** while leaving the restrictions configured.



Use strong passwords: □
Require mixed case: □
Require numbers and punctuation: □
Reject variation of login id: □
Reject word in dictionary: □
Reject standard substitutions: □ (@ for a, 3 for e, etc)
Reject sequences in numbers or letters: □ (qwerty)
Reject previous password: □
Number of previous passwords to check: 6
Reject single character difference from previous password: □
Enforce minimum password length: □
Minimum password length: 6
Expire password: □
Number of valid days: 30
Number of invalid attempts before lockout: 0 Only applies to appliances
Lockout duration in minutes: 0 Only applies to appliances

Restrictions include:

| Setting | Description |
|---|---|
| Require mixed case | Password must have both capital and lowercase characters<br>Valid password example: PassWord |
| Require numbers and punctuation | Password must include at least one numeral and at least one symbol.<br>Valid password example: P@ssW0rd |
| Reject variation of Login ID | Password cannot be derived from the login ID<br>Invalid Example:  admin1 |
| Reject variation of previous passwords | Obvious variations on the previous password will be rejected. The following examples assume that the previous password was P@ssW0rd<br>- change of case only; p@SSw0rD will be rejected<br>- reversed character sequence; dr0Wss@P will be rejected<br>- doubled sequence; P@ssW0rdP@ssW0rd will be rejected<br>- string containing the earlier password; myP@ssW0rd! will be rejected |
| Reject word in dictionary<br>Reject standard substitutions (@ for a, 3 for e, etc.) | If both options are selected, users may not set passwords such as p@$$w0rd.<br>Valid password example: P&ssW*r# |
| Reject sequences in numbers or letters | Users may not set passwords that consist of all the letters or numbers on one row of the keyboard, in sequence either from left to right or right to left, or a character string that contains such a sequence. Partial or broken sequences such as abc!defg or qwerty12 may be used. |
| Reject previous password<br>Number of previous passwords to check | Recently used passwords may not be reused |
| Reject single character difference from previous password | When changing a password, at least two characters must be changed |
| Enforce minimum password length<br>Minimum password length | Keeps users from setting passwords short enough to be easily guessed. |
| Expire password<br>Number of valid days | Forces users to change their passwords periodically. |

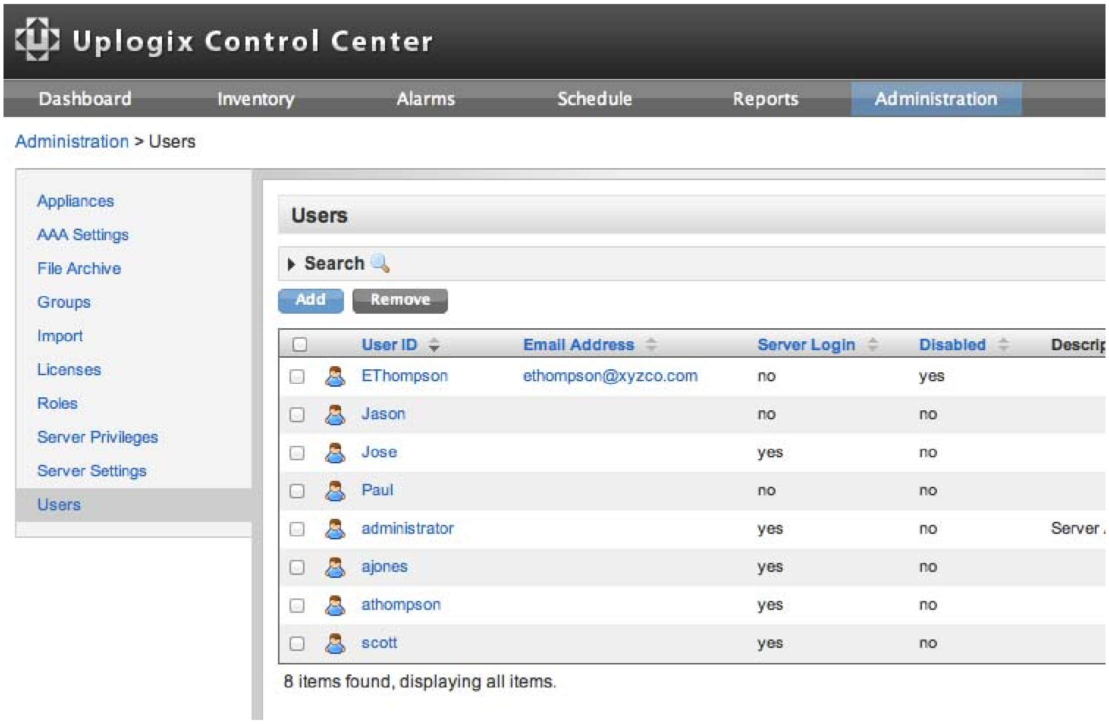
| Setting | Description |
|---|---|
| Number of invalid attempts before lockout<br>Lockout duration in minutes | Specify the maximum number of times a user can attempt to log into a Local Manager before the Local Manager refuses further attempts, and the length of the lockout period. Set the number of attempts to 0 to disable lockout protection. The default lockout time is 30 minutes. These settings apply only to Local Managers, not to the Uplogix Control Center. |

> Do not create a password that ends with a space character. When an attempt is made to log into a Local Manager using a password that ends with a space, the Local Manager strips the space character and the login fails.

## Working with user and group accounts

**Administration > Users**

Use the Users and Groups pages under the Administration tab to manage accounts. The options on the Create/Edit User and Create/Edit Group pages are the same as those found in the LMS commands `config user` and `config group`.



| □ | | User ID | Email Address | Server Login | Disabled | Descrip |
|---|---|---|---|---|---|---|
| □ | 👤 | EThompson | ethompson@xyzco.com | no | yes | |
| □ | 👤 | Jason | | no | no | |
| □ | 👤 | Jose | | yes | no | |
| □ | 👤 | Paul | | no | no | |
| □ | 👤 | administrator | | yes | no | Server . |
| □ | 👤 | ajones | | yes | no | |
| □ | 👤 | athompson | | yes | no | |
| □ | 👤 | scott | | yes | no | |

8 items found, displaying all items.

Accounts that exist locally on a Local Manager are deleted when the Local Manager makes contact and synchronizes with the Control Center. Accounts cannot be managed locally through the LMS command line if the Local Manager is managed by a Control Center.

There is an exception for users whose passwords expire. If you log into a Local Manager with an expired password, the command line prompts for a new password. When you set the password, it is pushed up to the Control Center.

User account management tasks include:

- Creating and editing user accounts
- Creating and editing group accounts
- Disabling user accounts
- Deleting accounts

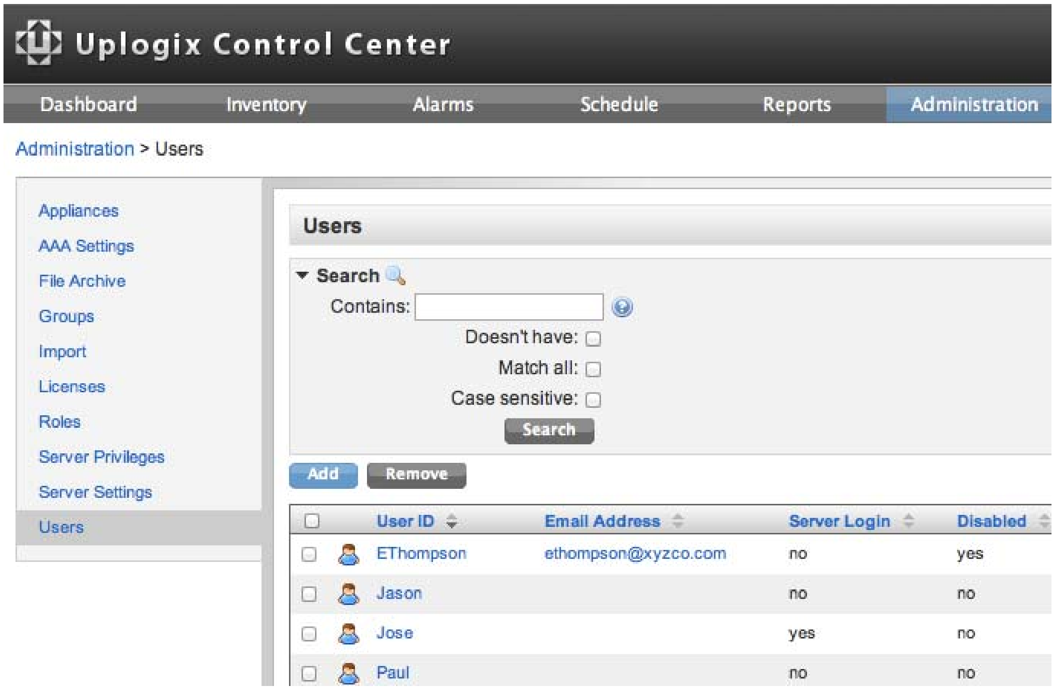
## Creating and editing user accounts

**Administration > Users**

To add a new account, click **Add**.

To edit an existing user account, click the **User ID**. When an existing user is edited, the **Edit User** page displays a timestamp showing when the account was created. The account name cannot be edited.

Search the list of users by entering a text string in the search box, select the type of search, and click **Search**.



Contains:

Doesn't have: □

Match all: □

Case sensitive: □

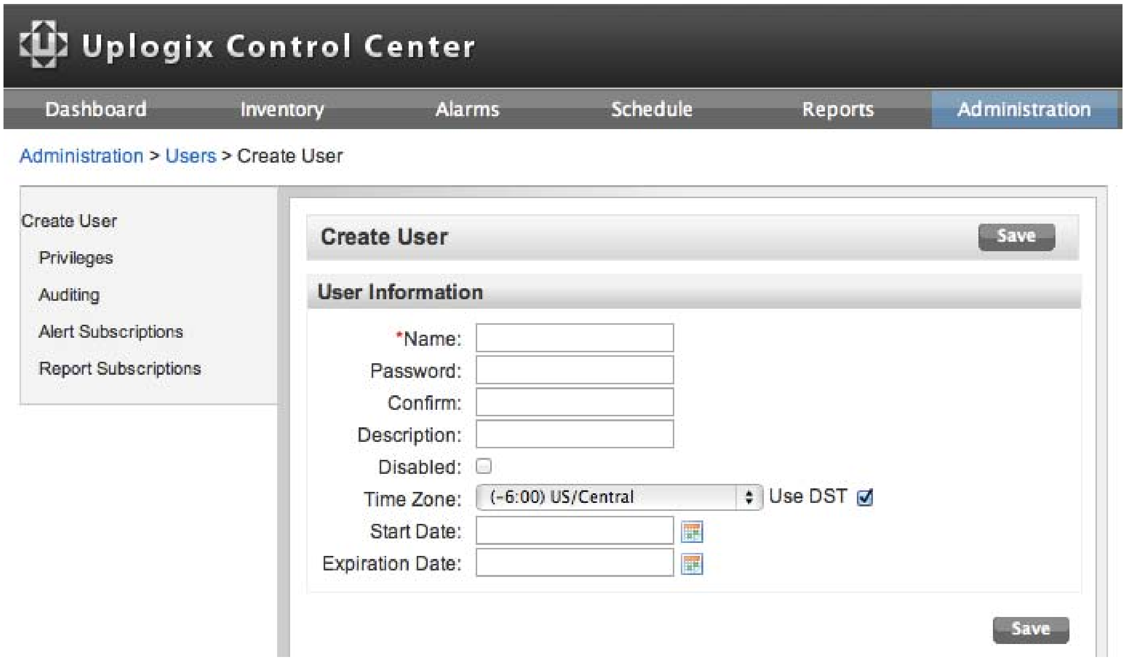
| □ | User ID | Email Address | Server Login | Disabled |
|---|---|---|---|---|
| □ | EThompson | ethompson@xyzco.com | no | yes |
| □ | Jason | | no | no |
| □ | Jose | | yes | no |
| □ | Paul | | no | no |

Complete the fields needed to create the account and set it up appropriately for your environment.

Account names must be unique. For example, if there is a group account called `sysadmin`, a user account called `sysadmin` cannot be created.

Use only printing characters when completing text fields. Spaces are considered printing characters, but may only be used in the description field.

Do not create a password that ends with a space character. When an attempt to log into a Local Manager is made using a password that ends with a space, the Local Manager strips the space character and the login fails.



Create User

User Information

*Name:
Password:
Confirm:
Description:
Disabled: □
Time Zone: (-6:00) US/Central Use DST ☑
Start Date:
Expiration Date:

If the Time Zone setting for a user account is changed while that user is logged in to a Local Manager, the change does not take effect on that Local Manager until the user ends the session.

Click **Save** when finished setting up the account information.

Initially, user accounts have no privileges, so the new user cannot log into the Control Center or to the Local Managers within the deployment. Privileges must be assigned to the new user account to allow the user to work with elements of your deployment. See Managing privileges.

Some users may need to receive alerts, reports, or audit other accounts. For information about setting up these functions, see Setting up email, auditing and report subscriptions.

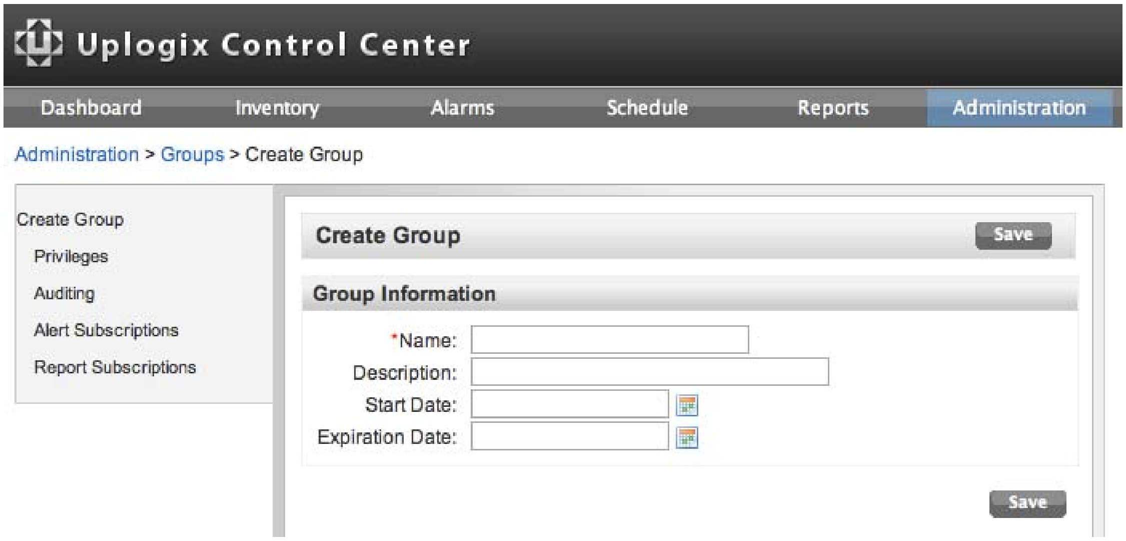
Several users can be created at once by importing a user file. See Importing user, group, and privilege files.

## Creating and editing group accounts

**Administration > Groups**

Use the Control Center to create and manage group accounts across multiple Local Managers to ensure a consistent user group organization and privilege policy.

To create or edit a group account, select **Groups** from the left menu under the Administration tab. Existing groups are displayed in the Group box.



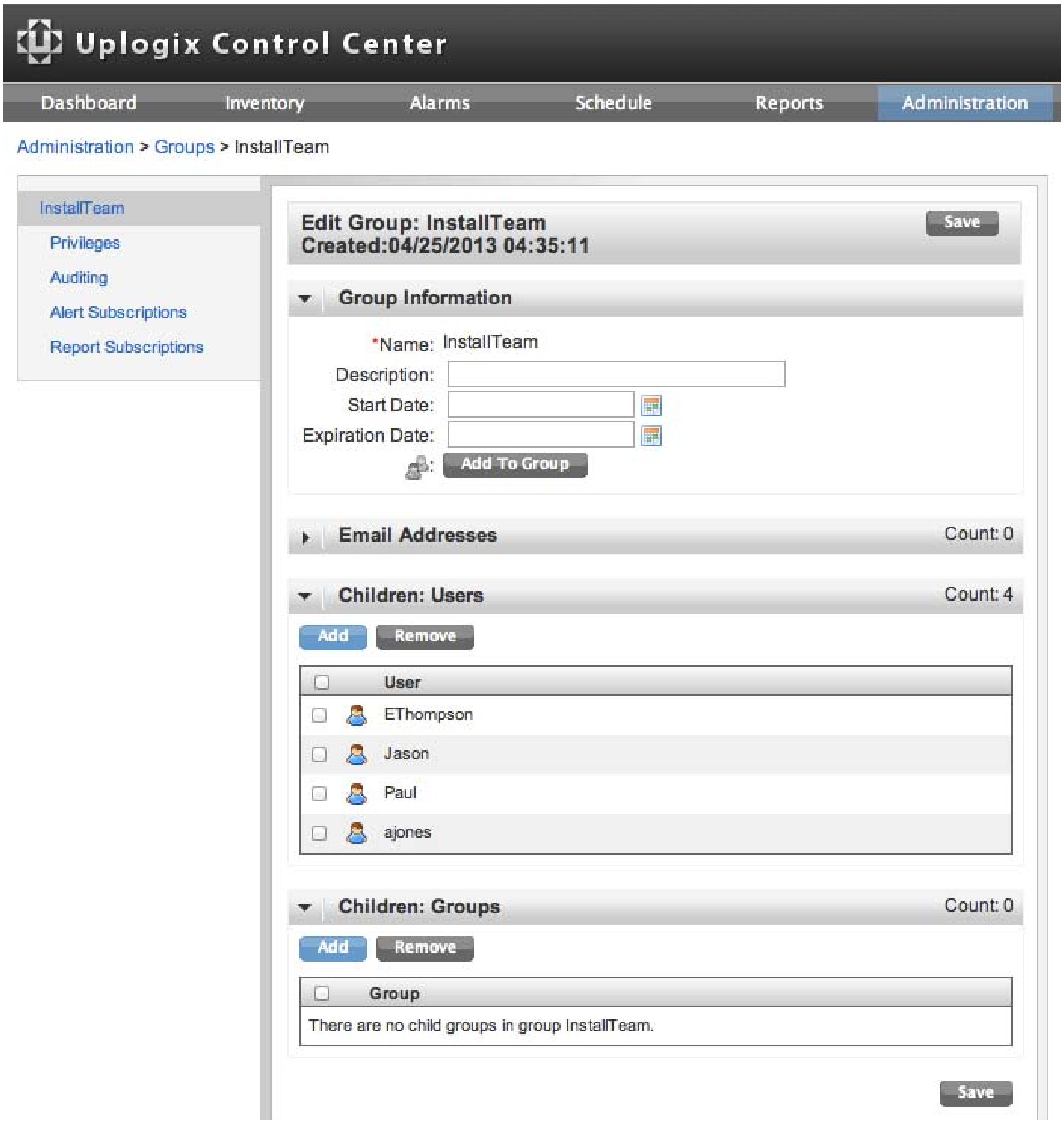
To create a new group, click **Add**. Specify a name for the group and optionally provide a description as well as a start and expiration date.

To edit an existing group, click the **Group ID**. This is equivalent to issuing the `config group` command from the Uplogix LMS command line. When an existing group is edited, the **Edit Group** page displays a timestamp showing when the account was created.

Account names must be unique. For example, if there is a user account called `sysadmin`, a group account called `sysadmin` cannot be created.

Use only printing characters when completing text fields. Spaces are considered printing characters, but may only be used in the **description** field.

Once the group is created, add users or other groups as members of this group. Members of the group inherit group-related settings such as privileges.



Edit Group: InstallTeam
Created:04/25/2013 04:35:11

*Name: InstallTeam
Description:
Start Date:
Expiration Date:

| □ | User |
|---|---|
| □ | EThompson |
| □ | Jason |
| □ | Paul |
| □ | ajones |

| □ | Group |
|---|---|
| There are no child groups in group InstallTeam. | |

The Available Users and Available Groups list are populated with information from the Control Center database. To add a new member to a group, the new user or group must first exist in the database. Click **Add** and select the user or group from the pop-up window as appropriate.

Click **Save** to save the group. Initially, user groups are automatically inherited by Local Managers. Initially, group accounts have no privileges so members of the group have only the permissions assigned to their individual accounts. Group privileges must be assigned to the new user account to allow the user to work with elements of your deployment. See Managing privileges.

The group may need to receive alerts, reports, or audit other accounts. For information about setting up these functions, see Setting up email, auditing and report subscriptions.

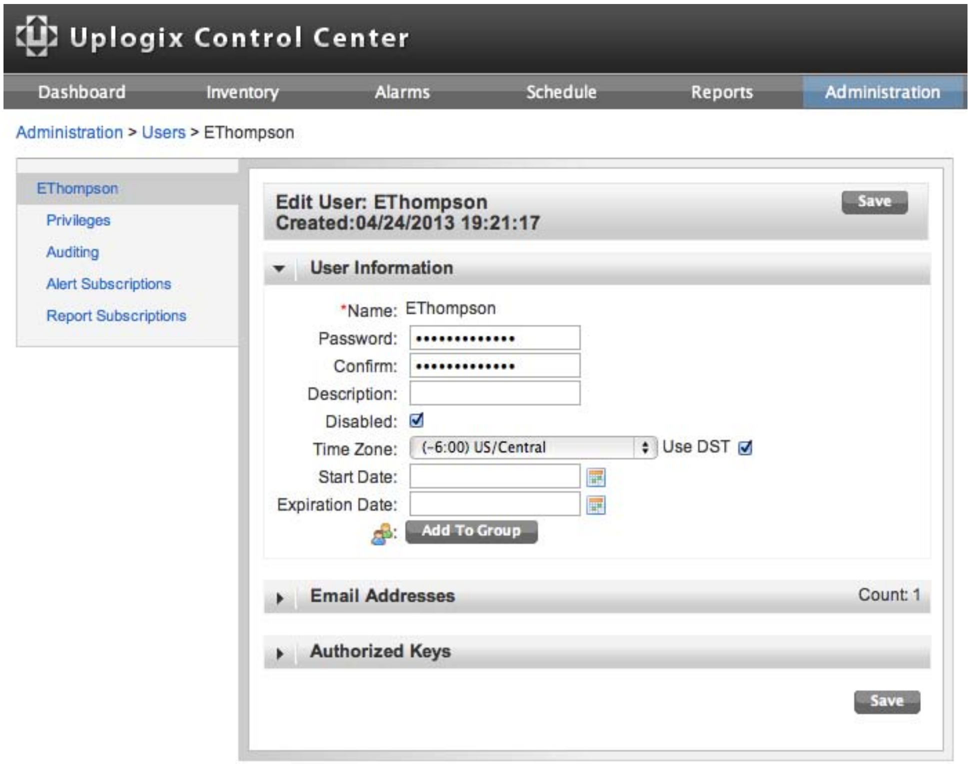
Several groups can be created at once by importing a group file. See Importing user, group, and privilege files.

## Disabling user accounts

**Administration > Users**

To suspend access to a user account without deleting the account, go to **Administration > Users** and select the User ID for the account to be edited.

On the Edit User screen, select **Disabled** and click **Save**.

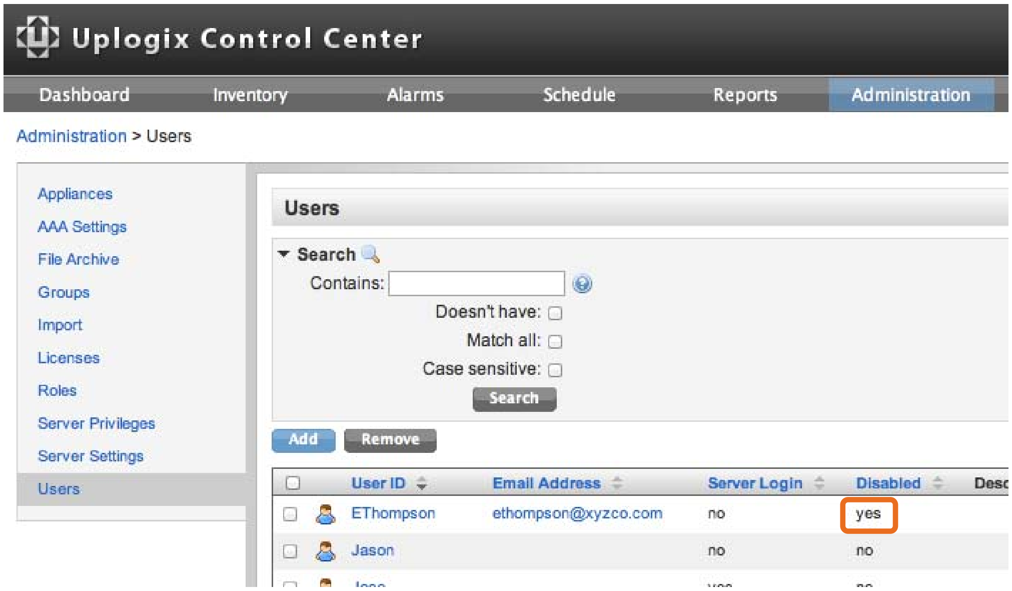


Edit User: EThompson
Created:04/24/2013 19:21:17

*Name: EThompson
Password: ••••••••••••••
Confirm: ••••••••••••••
Description:
Disabled: ☑
Time Zone: (-6:00) US/Central  Use DST ☑
Start Date:
Expiration Date:

Email Addresses  Count: 1

The user is not able to log in while the account is disabled. The status of Disabled displays in the user list.



Contains:
Doesn't have: ☐
Match all: ☐
Case sensitive: ☐

| ☐ | User ID | Email Address | Server Login | Disabled | Desc |
|---|---|---|---|---|---|
| ☐ | EThompson | ethompson@xyzco.com | no | yes | |
| ☐ | Jason | | no | no | |
| ☐ | Jose | | yes | no | |

If the user is logged in when their account is disabled, the user is logged out immediately.

### Deleting accounts

**Administration > Users**

**Administration > Groups**

To delete an account, click the check box associated with the User ID or Group ID and select Remove. This is equivalent to using the LMS commands `config user no [username]` and `config group no [groupname]` on a Local Manager not managed by a Control Center.

**Caution:** There is no delete confirmation.

## Managing privileges

Permissions, roles, and privileges are defined as follows:

- Permission: Ability to use a specific command or capability; can be allowed or denied in a role definition
- Role: A named set of permissions that a user is permitted to execute, such as `admin`
- Privilege: A role assigned to a specific account for a specific resource, such as "admin on system" or "guest on port 1/4"

Some permissions, such as `config hierarchy`, are not associated with specific commands but provide override ability and should be used sparingly.

The Control Center restricts access to features based on a user’s privileges. For example, if a user does not have a role that includes permission to use the `config system ip` command, the IP configuration link is unavailable for that user on the Local Manager detail Page.

All aspects of working with the Control Center and the equipment it manages are affected by account privileges. By default, user and group accounts have no privileges.

The administrator account on the Control Center has admin access to all features of the server, but no privileges on individual Local Managers. So administrator cannot log into a Local Manager. Conversely, the admin account on Local Managers has no privileges on the Control Center. However, the administrator account has the `config hierarchy` permission, which allows the administrator to manage individual Local Managers through the Control Center.

In this section:

## Adding server privileges to accounts

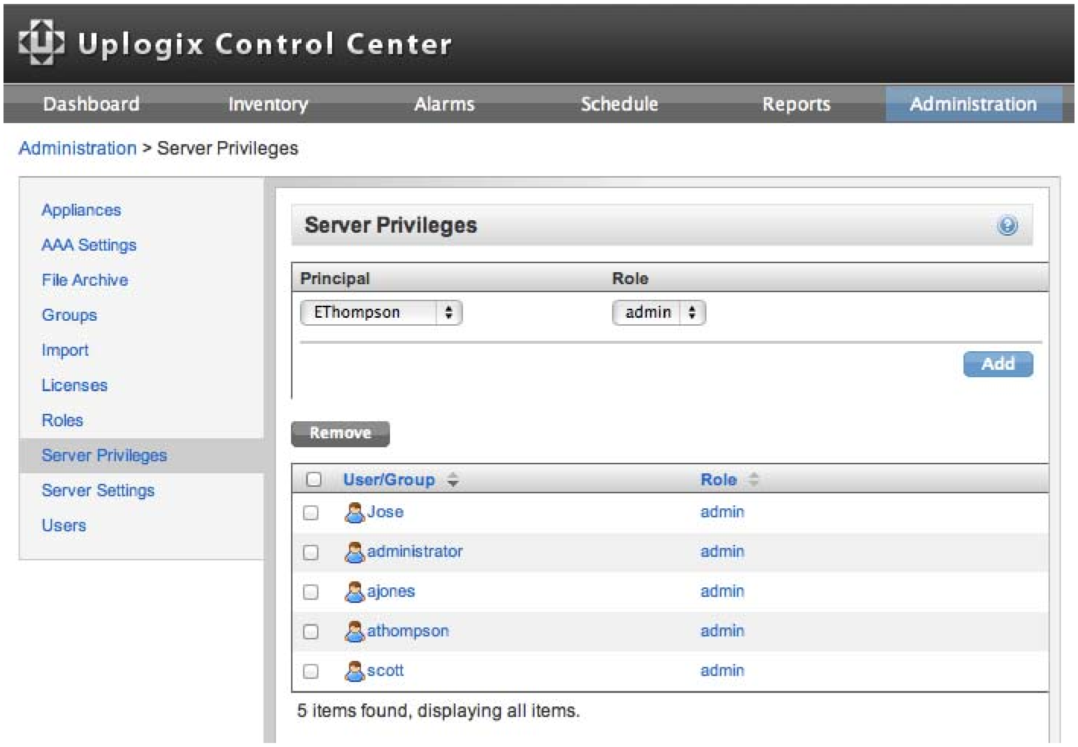
**Administration > Server Privileges**

When a new user or group account is created, the account has no privileges. To log into the Control Center and work with its web interface, users must have appropriate levels of server privileges.

Privileges on the Control Center are assigned separately from privileges on the equipment in the inventory. Both are needed if a user is to use the Uplogix web interface to work with Local Managers and to access Local Managers individually via SSH.

Privileges can be assigned to several users at once by importing a permissions file. See Importing user, group, and privilege files.

To assign server privileges, go to the Server Privileges page on the Administration tab.



Server Privileges

Principal: EThompson
Role: admin

| □ | User/Group | Role |
|---|---|---|
| □ | Jose | admin |
| □ | administrator | admin |
| □ | ajones | admin |
| □ | athompson | admin |
| □ | scott | admin |

5 items found, displaying all items.

Unlike inventory privileges, server privileges only apply to one resource - the Control Center.

Select a user or group from the User/Group list, select a role, and click **Add**. Groups are listed first, followed by users. An * after the group name indicates a group.

As with Local Manager privileges, more than one role can be assigned to an account to tailor that account's privileges.

## Adding inventory privileges to accounts

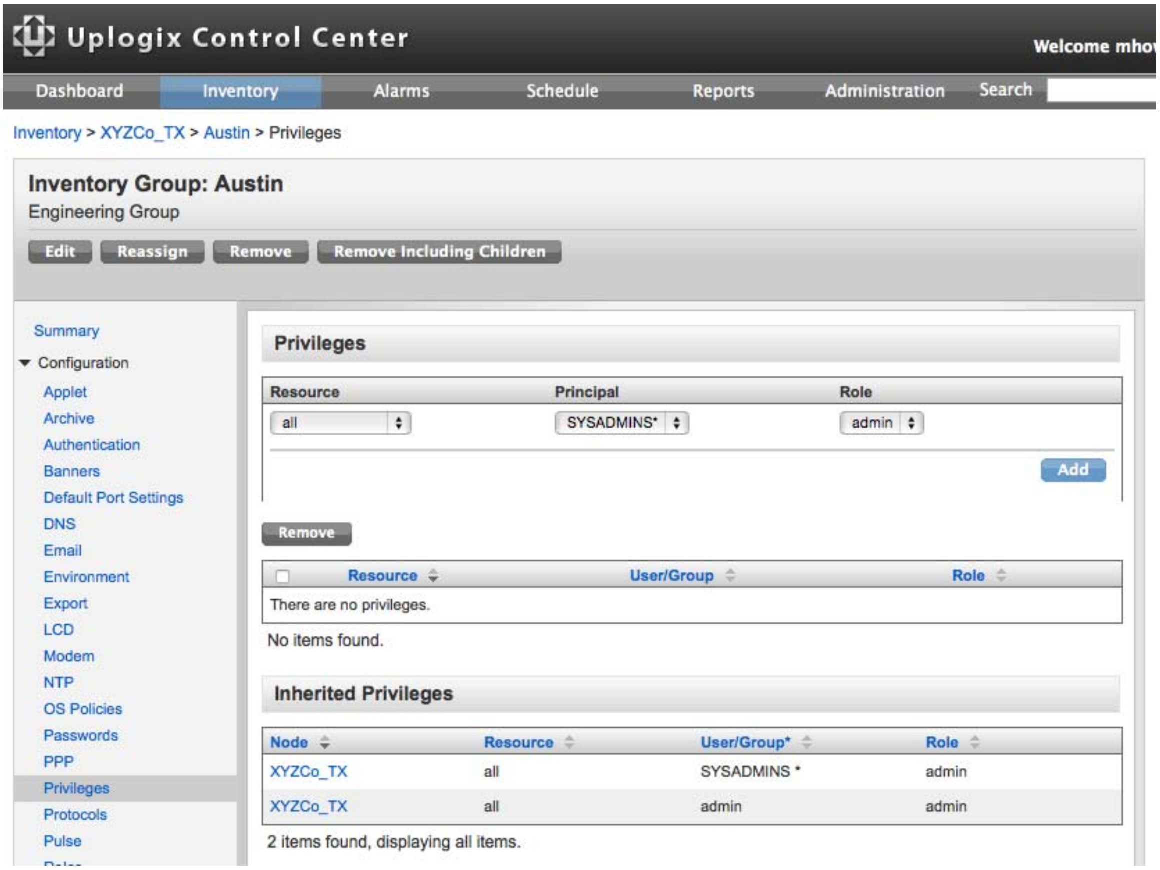
**Inventory > Group Detail > Configuration > Privileges**

When a new user or group account is created, the account has no privileges. Set an account’s privileges to apply to all Local Managers in the inventory by assigning them at the root level or limit privileges to specific inventory groups.

> Inventory privileges are limited to Local Managers in the inventory, and the devices they control. Server privileges must be assigned separately. See Adding server privileges to accounts. To manage the inventory through the Control Center, users must have server privileges.

Privileges can be assigned to several users at once by importing a permissions file. See Importing user, group, and privilege files.

To add inventory privileges, select the appropriate inventory group from the Inventory page and click **Privileges** under the Configuration menu.



Inventory Group: Austin

Engineering Group

Privileges

| Resource | Principal | Role |
|---|---|---|
| all | SYSADMINS* | admin |

| ☐ | Resource | User/Group | Role |
|---|---|---|---|
| There are no privileges. | | | |

No items found.

Inherited Privileges

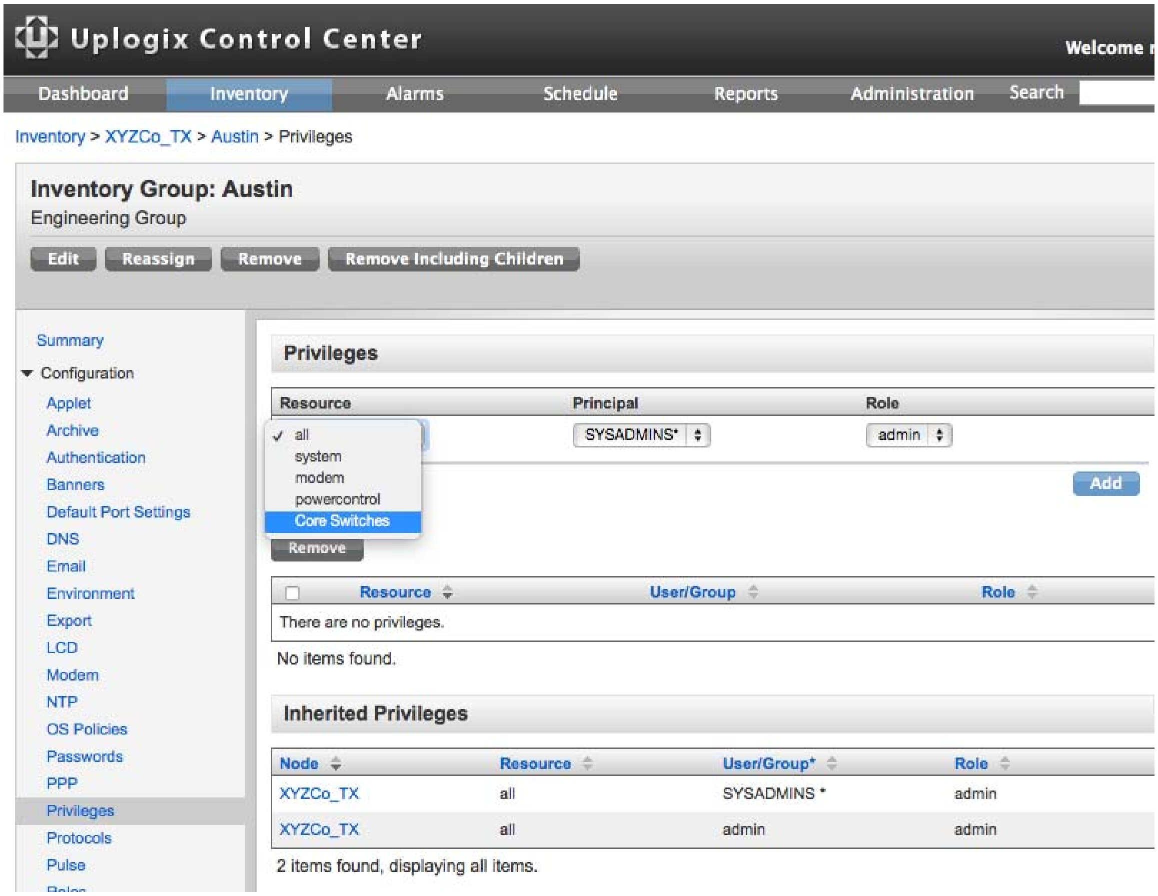
| Node | Resource | User/Group* | Role |
|---|---|---|---|
| XYZCo_TX | all | SYSADMINS * | admin |
| XYZCo_TX | all | admin | admin |

2 items found, displaying all items.

Use the Privilege List page to assign privileges to accounts in the form of defined roles and to specify the resources where each role is applied—all, system, modem, or powercontrol. If labels have been created, these are available as resources also.

Select a user or group from the User/Group list, select a role, and click **Add**. Groups are listed first, followed by users. An * after the group name indicates a group.

More than one role can be assigned to an account and be given different roles on different resources.



Inventory Group: Austin

Engineering Group

Privileges

| Resource | Principal | Role |
|---|---|---|
| ✓ all<br>system<br>modem<br>powercontrol<br>Core Switches | SYSADMINS* | admin |

| □ | Resource | User/Group | Role |
|---|---|---|---|
| There are no privileges. | | | |

No items found.

Inherited Privileges

| Node | Resource | User/Group* | Role |
|---|---|---|---|
| XYZCo_TX | all | SYSADMINS * | admin |
| XYZCo_TX | all | admin | admin |

2 items found, displaying all items.

To remove privileges at the port level, select a Local Manager from the inventory and select **Privileges** from Configuration menu.

Use the Local Manager's Privilege List to add or delete user roles by individual resource.

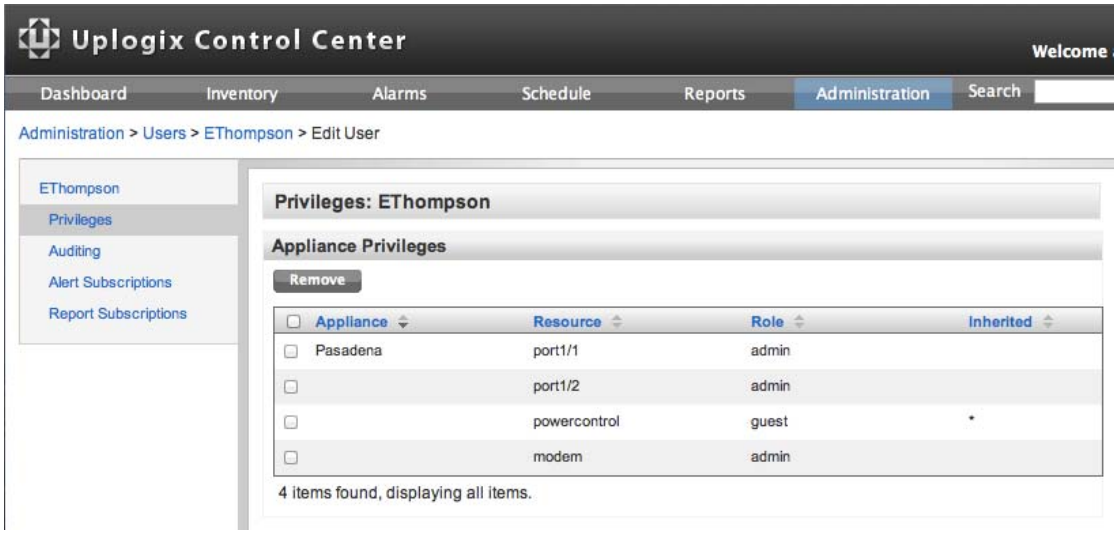
If the pre-configured standard roles do not meet your organization's needs, create roles to meet the specific requirements of your deployment. See Creating and customizing roles.

## Viewing and deleting user account privileges

**Administration > Users**

To view or edit a user's privileges, click the **user id** and then select **Privileges** from the left menu.

Use the user privileges detail to see and delete specific privileges. In the example below, the user `EThompson` has admin privileges assigned locally on Local Manager `Pasadena`, and inherited `guest` privileges that have been assigned at the inventory group level.



Privileges: EThompson

Appliance Privileges

| □ Appliance | Resource | Role | Inherited |
|---|---|---|---|
| □ Pasadena | port1/1 | admin | |
| □ | port1/2 | admin | |
| □ | powercontrol | guest | • |
| □ | modem | admin | |

4 items found, displaying all items.

## Creating and customizing roles

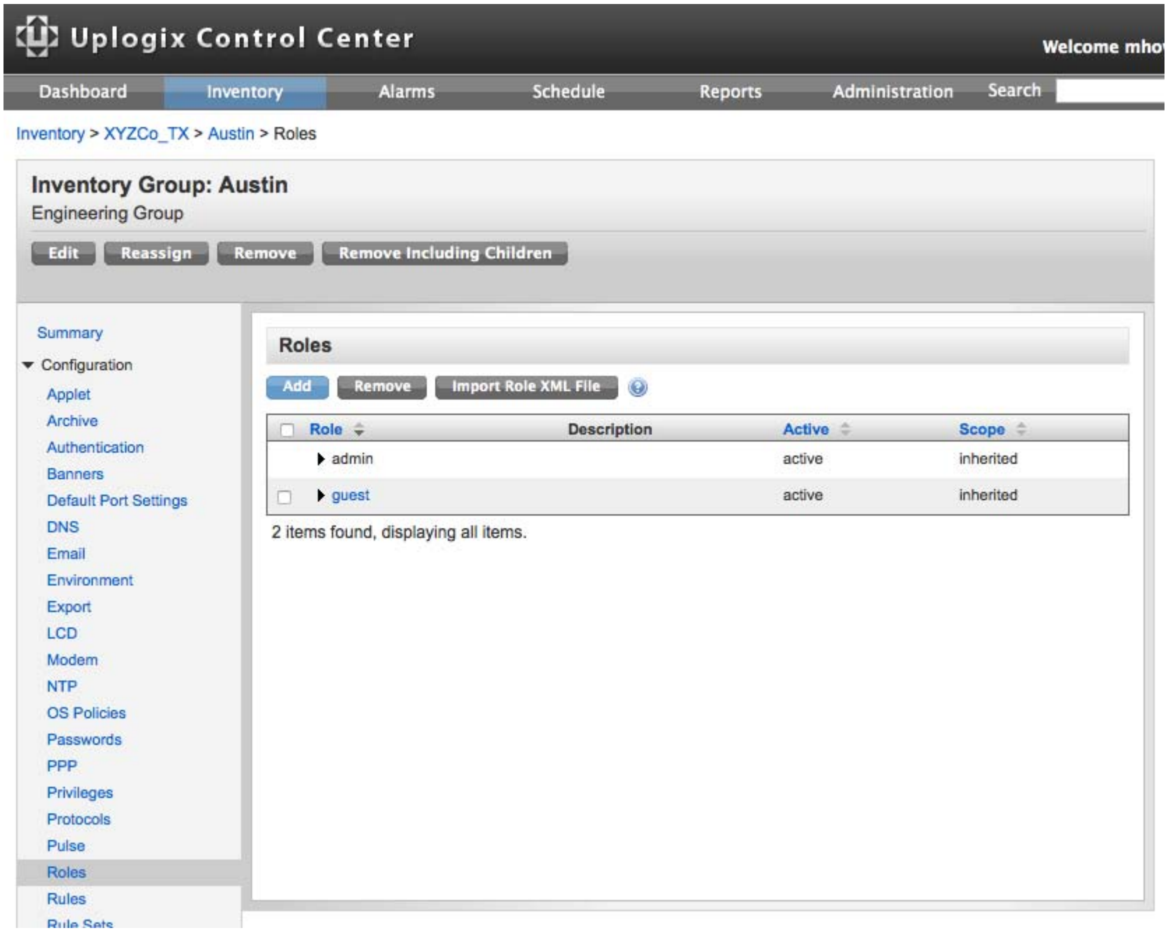
**Inventory > Configuration > Roles**

A role is a set of commands that a user is permitted to execute. When privileges are assigned to a user or group account, the account is associated with one or more roles on one or more resources. See Adding inventory privileges to accounts.

The Control Center provides the same predefined roles that are available in the Uplogix LMS CLI. In addition to these standard roles, custom roles can be defined to suit your deployment. Roles may be created at the root level to apply globally or they may be created within an inventory group to apply only to that group and its child groups.

To view a list of roles defined for any given inventory group, select the group from the inventory list and click **Roles** under the Configuration menu.

On the View Roles page, click **Add** to add a role or select the **Role ID** to edit an existing role. This is equivalent to issuing the `config role` command from the Uplogix LMS command line.



Inventory > XYZCo_TX > Austin > Roles

**Inventory Group: Austin**

Engineering Group

**Roles**

| □ Role | Description | Active | Scope |
|---|---|---|---|
| ▸ admin | | active | inherited |
| □ ▸ guest | | active | inherited |

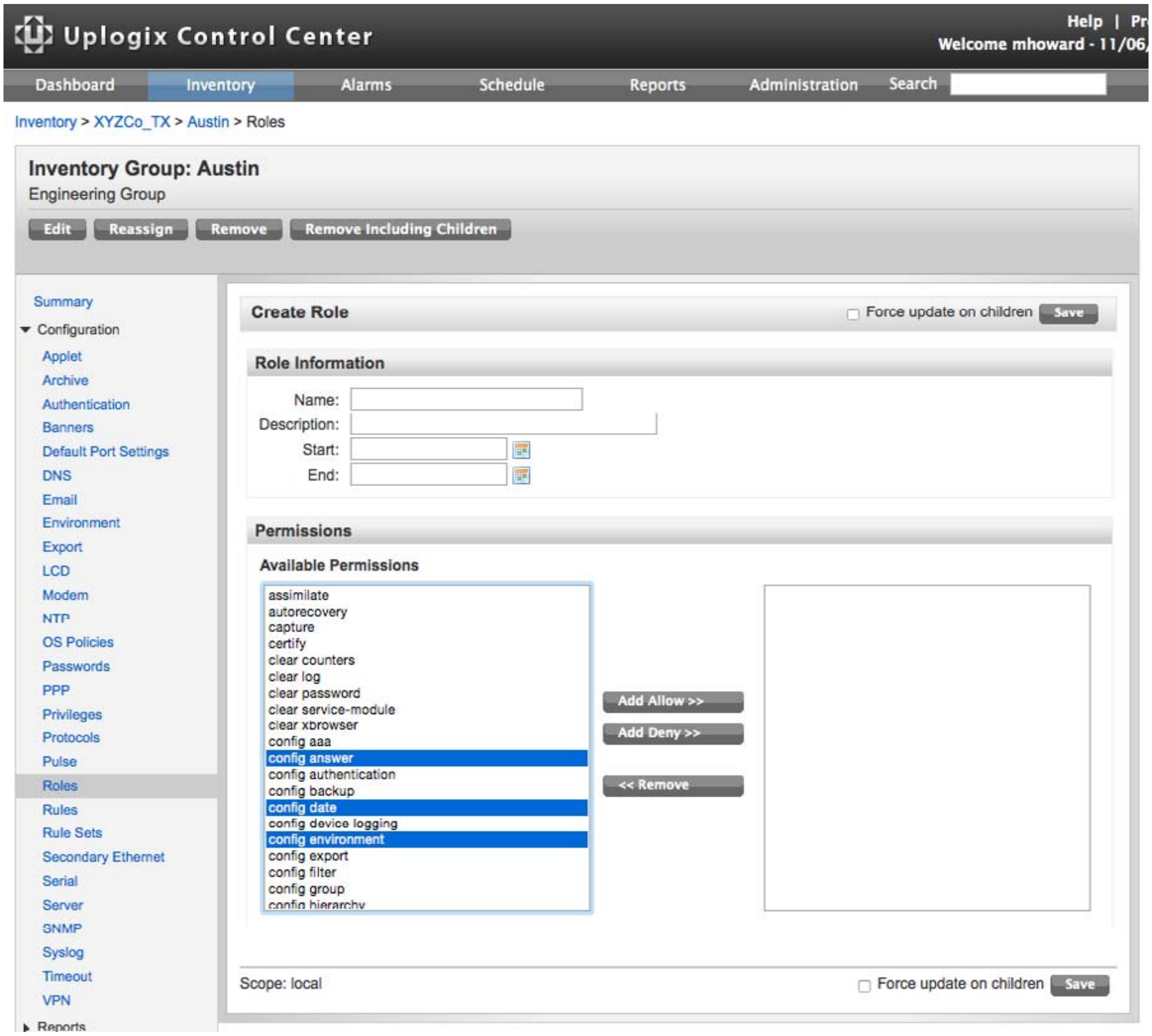
2 items found, displaying all items.

The role name is required when creating a new role.

> Use only printing characters when completing text fields. Spaces are considered printing characters, but may only be used in the description field.

Specify the role permissions by selecting them from the Available Permissions list and using the **Add Allow** and **Add Deny** buttons.

To select more than one permission at a time, use shift-click on the first and last items in a range or use control-click to select permissions separately.



Inventory > XYZCo_TX > Austin > Roles

**Inventory Group: Austin**

Engineering Group

**Create Role** □ Force update on children

**Role Information**

Name:

Description:

Start:

End:

**Permissions**

**Available Permissions**

assimilate
autorecovery
capture
certify
clear counters
clear log
clear password
clear service-module
clear xbrowser
config aaa
config answer
config authentication
config backup
config date
config device logging
config environment
config export
config filter
config group
config hierarchy

Scope: local □ Force update on children

As with many other settings, when a role is created it is automatically inherited by any Local Managers and child groups within the current inventory group. If a role with the same name already exists on a Local Manager or child group within the current inventory group, select **Force update on children** to overwrite it.

Once the privileges for the role are defined, click **Save**.

## Using RADIUS/TACACS to manage privileges

Setting up a user account to use a RADIUS or TACACS ACL allows the TACACS server to send group member information in the initial login transaction. To use this feature, the account must be set up on the RADIUS/TACACS server.

The general procedure is as follows:

1. Configure the Control Center to use RADIUS or TACACS.
2. Set up a user group and associate a RADIUS or TACAS ACL to it.
3. Assign at least one role to give the group the desired set of permissions; create a suitable role if necessary.

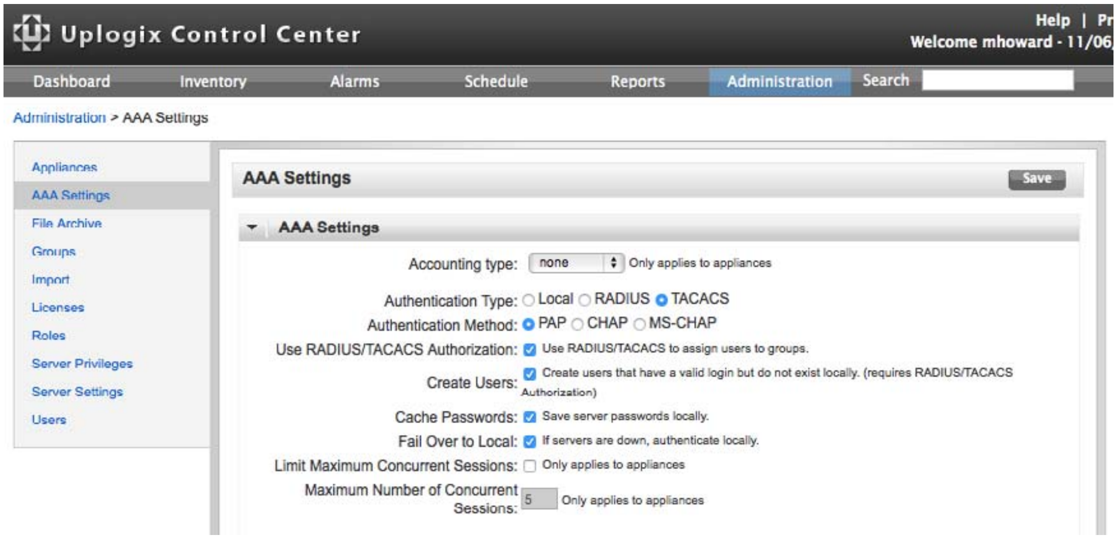
These steps are described in detail below.

> If AAA functions are delegated to an external server, create a user with the admin role on the Control Center and add that account on the external server beforehand. If no user has the `admin` role on the Control Center, the administration functions are not accessible.

### Set up authentication

On the **Administration > AAA Settings** page, set up the Authentication Settings as follows:

1. Under Authentication Type, select RADIUS or TACACS.
2. Select the appropriate authentication method.
3. Select **Use RADIUS/TACACS Authorization**.
4. If you want to automatically create Uplogix user accounts for users defined in your AAA server, choose Select **Create Users**.
5. Enter the IP address and shared secret for each AAA server. Up to four servers may be specified.
6. Optionally, select **Cache Passwords** to ensure that user accounts, passwords and privileges will still be available if the AAA server is offline during a future login authentication/authorization.



Accounting type: none Only applies to appliances

Authentication Type: ○ Local ○ RADIUS ● TACACS

Authentication Method: ● PAP ○ CHAP ○ MS-CHAP

Use RADIUS/TACACS Authorization: ☑ Use RADIUS/TACACS to assign users to groups.

Create Users: ☑ Create users that have a valid login but do not exist locally. (requires RADIUS/TACACS Authorization)

Cache Passwords: ☑ Save server passwords locally.

Fail Over to Local: ☑ If servers are down, authenticate locally.

Limit Maximum Concurrent Sessions: □ Only applies to appliances

Maximum Number of Concurrent Sessions: 5 Only applies to appliances

When a user logs in to the Control Center with Cache Passwords enabled, the Control Center verifies the password with the authentication server and then updates the user account (caching) on the Control Center. Since the account is updated, this change gets pushed down to all the Local Managers, changing the user's password on Local Managers throughout the inventory.

Using this method, the Control Center can be configured to use AAA, but the Local Managers don't have to. The Local Manager receives the user's new password via the Control Center and authenticates locally with the password received remotely. Although the user logs into the Local Manager with the account's TACACS password, the Local Manager is not really contacting the TACACS server.

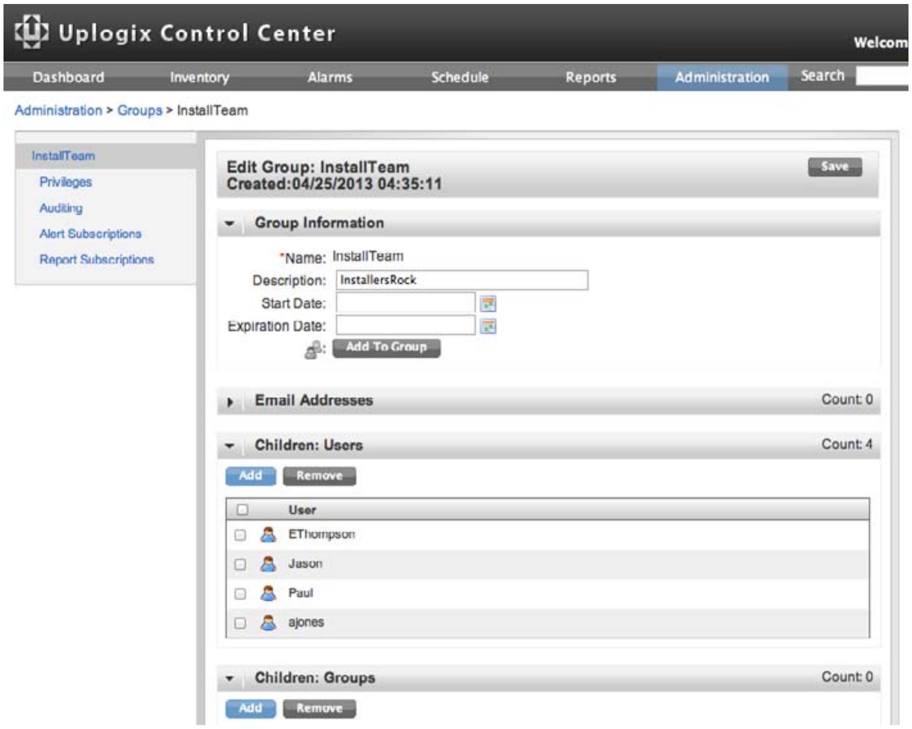
In this scenario, if the user's password changes on TACACS, it is not updated on the Local Managers in the inventory until the user logs into the Control Center to cache the new password. At this time it is pushed to the Local Managers. Evaluate whether this is a suitable approach for your environment.

Uplogix User passwords are encrypted on the Control Center and Local Manager using AES encryption.

## Create a group and assign a TACACS ACL

The group provides a means to associate roles to the TACACS ACL.

1. Under **Administration > Groups** create a group. Users do not need to be added to the group.
2. Enter a name or a number that means something to you in the TACACS ACL field.



Edit Group: InstallTeam
Created:04/25/2013 04:35:11

*Name: InstallTeam
Description: InstallersRock
Start Date:
Expiration Date:

Email Addresses Count: 0

Children: Users Count: 4

| □ | User |
|---|---|
| □ | EThompson |
| □ | Jason |
| □ | Paul |
| □ | ajones |

Children: Groups Count: 0

3. Assign suitable roles to the group. See Adding server privileges to accounts and Adding inventory privileges to accounts. Users are not able to authenticate until they have roles.

## Enable authorization on an existing TACACS user

Once the user is created and is able to authenticate to the Local Manager, authorization can be added by adding an ACL under the “Exec” service in your user or group. In most Unix TACACS deployments, the `users` file can be edited and the following lines can be added to either the group or the user:

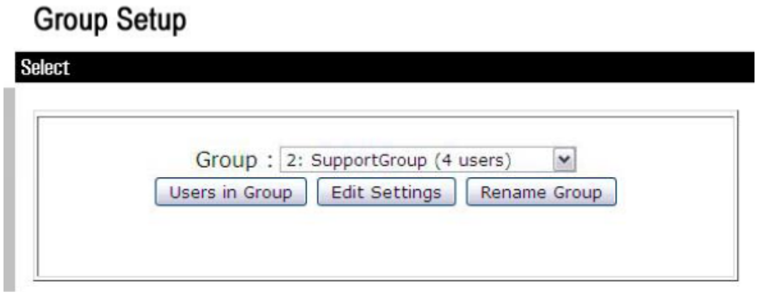
```
service = exec {
acl = <acl name/number from Uplogix Control Center group>
}
```

Refer to your TACACS administrator guide for more specific examples of configuration required for this functionality.

## Enabling authorization on a TACACS user with Cisco ACS

To enable authorization on an existing TACACS user with Cisco ACS:

1. On your ACS, create a group for your users and then edit it by clicking **Edit Settings**.

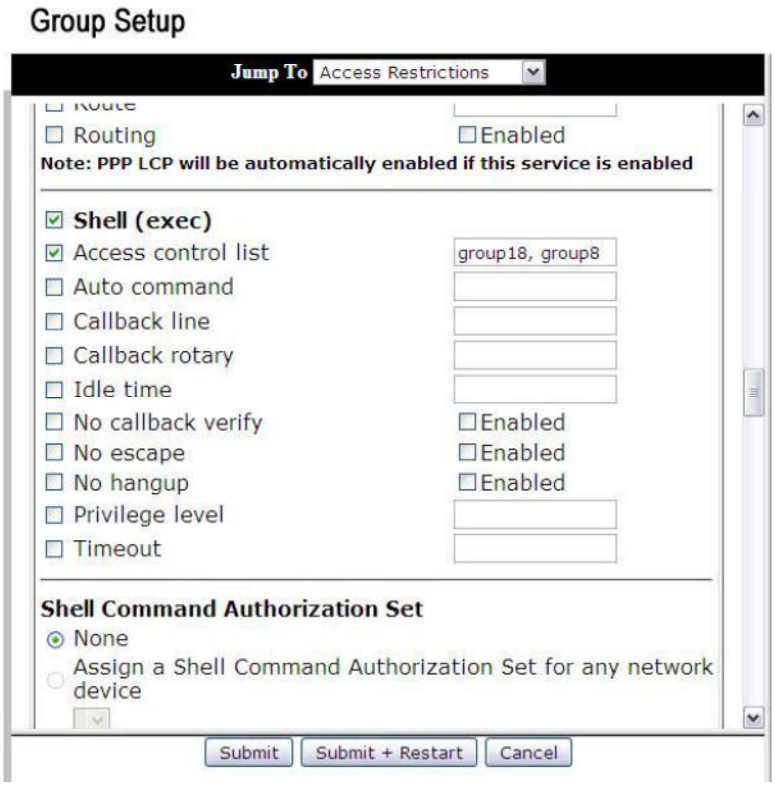


Group Setup

Select

Group : 2: SupportGroup (4 users)

2. Edit this group to include the following options: Shell (exec) and Access control list.



Group Setup

Jump To Access Restrictions

□ Route

□ Routing □Enabled

Note: PPP LCP will be automatically enabled if this service is enabled

☑ **Shell (exec)**

☑ Access control list: group18, group8

□ Auto command

□ Callback line

□ Callback rotary

□ Idle time

□ No callback verify □Enabled

□ No escape □Enabled

□ No hangup □Enabled

□ Privilege level

□ Timeout

**Shell Command Authorization Set**

● None

○ Assign a Shell Command Authorization Set for any network device

3. Add a list of groups that you wish your users to be a part of, and then click **Submit + Restart**.

### Associate the ACL to users on the RADIUS Server

Create new users or add the ACL to existing users.

- The RADIUS Vendor specific attribute (VSA) "Uplogix-Version" is used to configure information specific to Uplogix.
- A new field called "Uplogix-User-Groups" in the VSA to hold a user's group information should be created.
    - The field can contain a single group name or comma-separated list of groups.
    - The group names must be established and configured on the Uplogix system separately from the RADIUS configuration.
    - On successful login on RADIUS, the VSA for Uplogix will be returned with the RADIUS response to the Uplogix device.

These steps are described in detail below.

- The Radius Dictionary contains these fields and is also available from the Uplogix support site.

```
Uplogix          10243
BEGIN VENDOR     Uplogix
ATTRIBUTE        Uplogix Version          1    string
ATTRIBUTE        Uplogix User Groups      3    string
ATTRIBUTE        Uplogix CLI Command      4    string
ATTRIBUTE        Uplogix Envoy Serial     5    string
ATTRIBUTE        Uplogix Task ID          6    string
END VENDOR       Uplogix
```

## Example: Creating a superuser

The Control Center is a resource, just as Local Managers and their ports, modems, and power controllers are resources. Users cannot log into the Control Center until they have privileges.

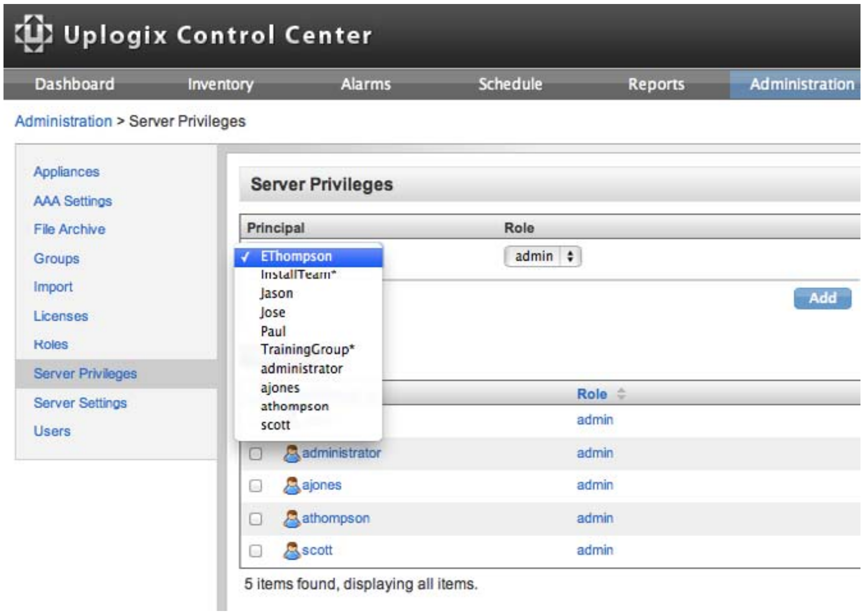
The administrator account on the Control Center has admin access to all features of the server, but no privileges on individual Local Managers. Therefore, administrator cannot log into a Local Manager. This account does have the `config hierarchy` permission that allows the administrator to manage individual Local Managers through the Control Center.

Conversely, the admin account on Local Managers has no privileges on the Control Center.

Server privileges and Local Manager privileges are separate and must both be explicitly assigned if a user is to work with equipment in the inventory as well as the Control Center itself.

To create a user who can execute any operation on any resource, first create the user. See Creating and editing user accounts.

1. Go to the **Server Privileges** page and assign the `admin` role to the user.



Server Privileges

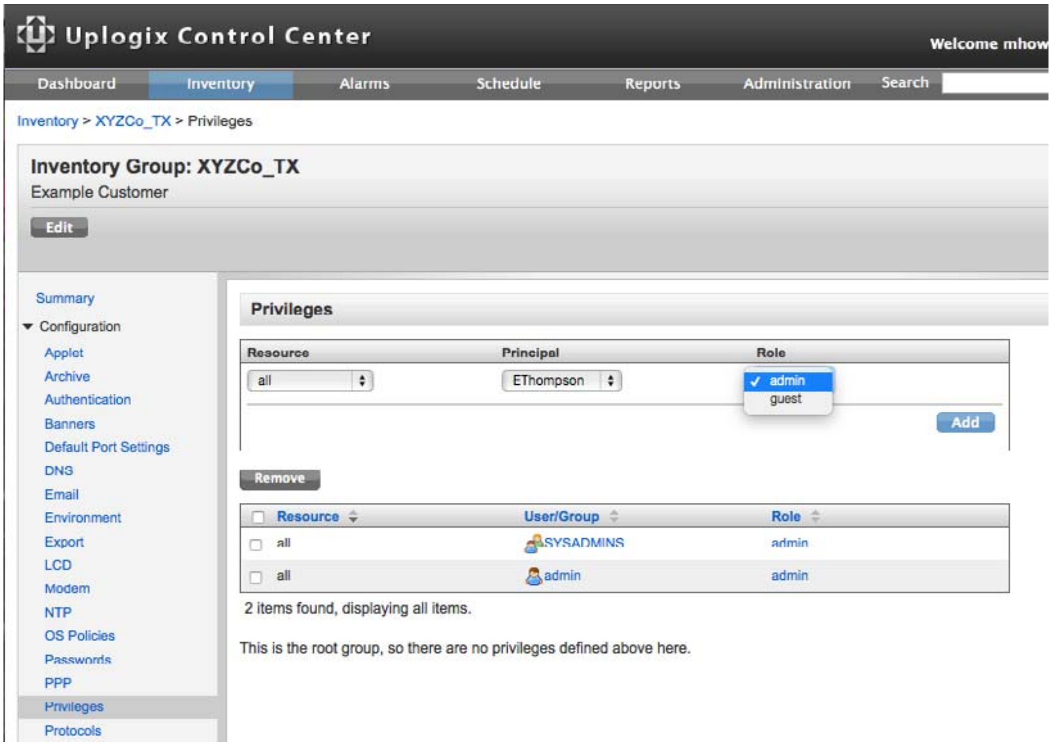
| Principal | Role |
|---|---|
| EThompson | admin |

| | Principal | Role |
|---|---|---|
| | | admin |
| □ | administrator | admin |
| □ | ajones | admin |
| □ | athompson | admin |
| □ | scott | admin |

5 items found, displaying all items.

2. Go to the **Inventory** tab. The detail page for the root group is displayed. Click **privileges**.

3. Assign the user `admin` privileges on `all` resources.



Inventory Group: XYZCo_TX

Example Customer

Privileges

| Resource | Principal | Role |
|---|---|---|
| all | EThompson | admin |

| □ | Resource | User/Group | Role |
|---|---|---|---|
| □ | all | SYSADMINS | admin |
| □ | all | admin | admin |

2 items found, displaying all items.

This is the root group, so there are no privileges defined above here.

4. The user now has access to all commands and capabilities on the Control Center and on all equipment at every level of the inventory.

## Example: Limiting a user's access to one port on one system

Sometimes a user needs only minimal access. In this example a user is created who can only log into one Local Manager, and after logging in, can only execute the terminal command on port 1/1. To do this, we must complete the following:

- Create a custom role
- Create a user account that will have this role
- Apply the role to the appropriate resources

### Creating the role

On the **Administration > Roles** page, click **Add** to open the Create Role page. Use this page to create a role that is universally available.

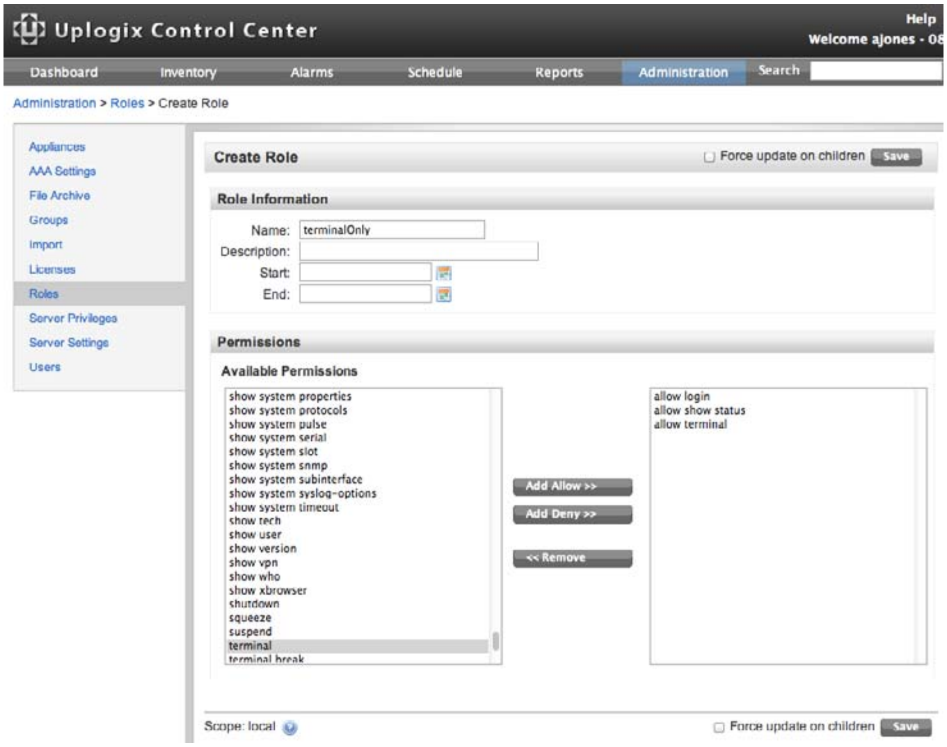
If the role should only be available within a specific inventory group and child groups, access the Create Role page by clicking the **Roles** button on the appropriate inventory group detail page.

For this example, a role called `terminalOnly` will be created that can be assigned at the system level and on the desired port. This role gives only the permissions required for a user to be able to open a terminal session to the device on port 1/1.

Users can only execute commands while logged in to the Local Manager, so the user's permissions must include the `login` permission on the system.

The terminal command runs on the port resources only, so this user needs to navigate to the appropriate port in order to open terminal sessions. There is no "port" permission. Instead, use the `show status` permission. When applied to a port, this permission allows the user to navigate to the port.

When the user has navigated to the appropriate port, this role must allow the user to execute the terminal command, so the role must include the `terminal` permission.



Name: terminalOnly
Description:
Start:
End:

Available Permissions:

show system properties
show system protocols
show system pulse
show system serial
show system slot
show system snmp
show system subinterface
show system syslog-options
show system timeout
show tech
show user
show version
show vpn
show who
show xbrowser
shutdown
squeeze
suspend
terminal
terminal break

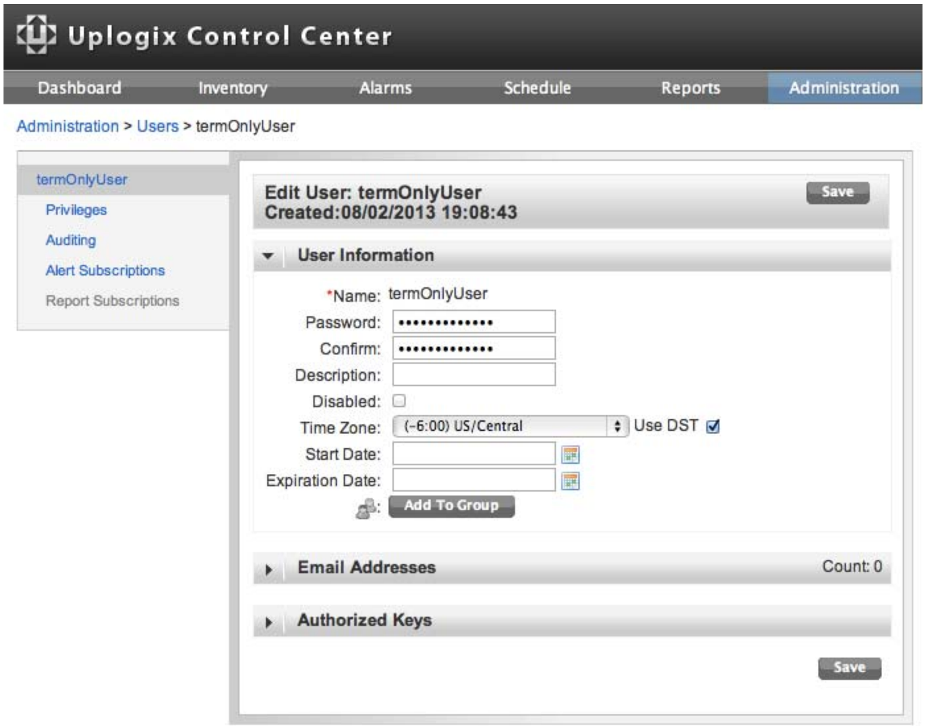
allow login
allow show status
allow terminal

Once the required permissions have been added, click **Save** to save the `terminalOnly` role.

## Creating the user account

On the **Administration > Users** page, click **Add** to open the Create User page.

For this example, a user account called `termOnlyUser` is created.



Edit User: termOnlyUser
Created:08/02/2013 19:08:43

| | |
|---|---|
| *Name: | termOnlyUser |
| Password: | ••••••••••••• |
| Confirm: | ••••••••••••• |
| Description: | |
| Disabled: | □ |
| Time Zone: | (-6:00) US/Central Use DST ☑ |
| Start Date: | |
| Expiration Date: | |

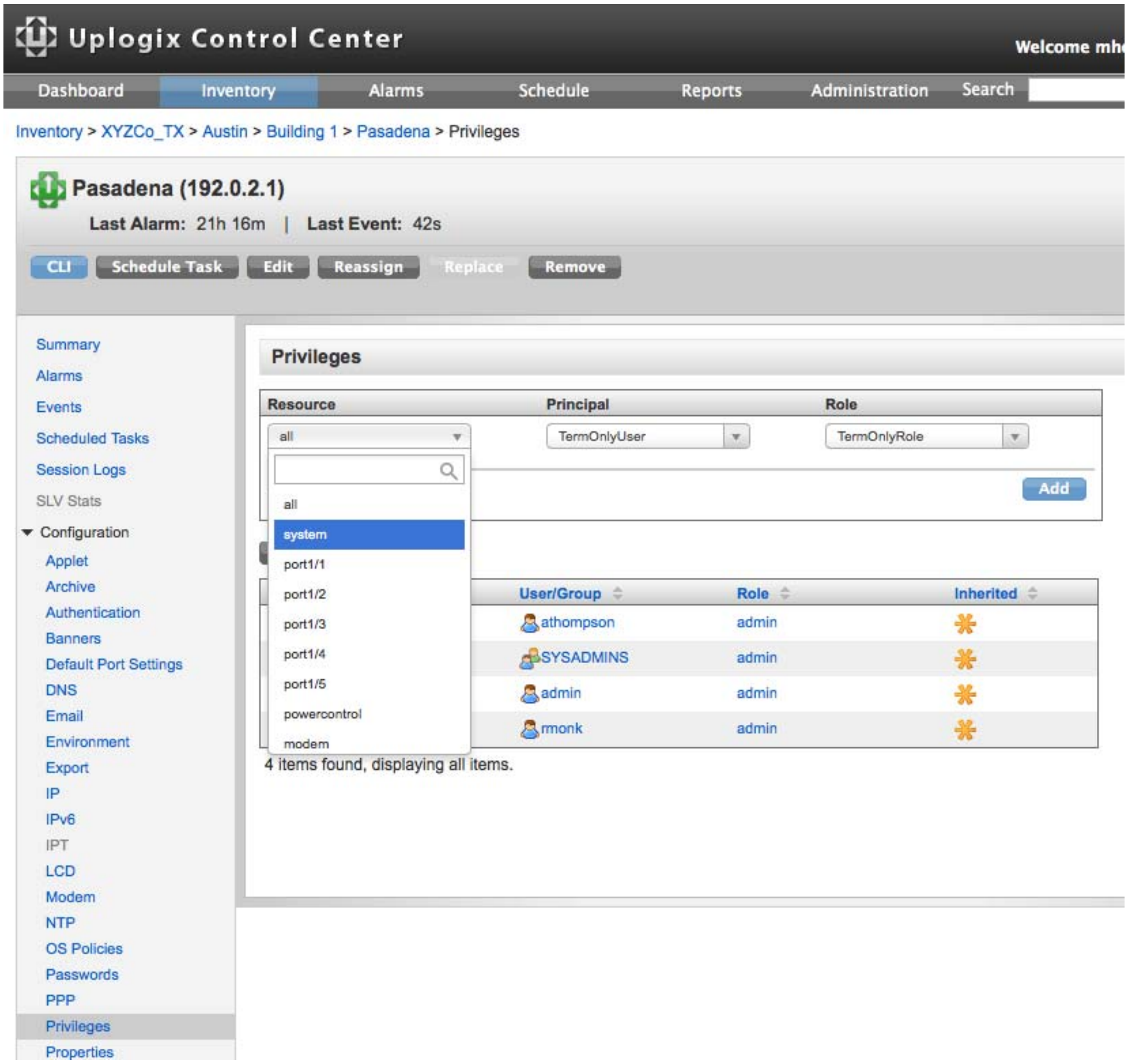
## Applying the role to create permissions

This user account does not need access to the web interface, therefore no server privileges are assigned.

The account should only provide access to port 1/1 on a single system, so privileges from the Local Manager's expanded detail page are assigned.

Locate the appropriate system in the inventory. On the Configuration menu, click **Privileges** to open the Privilege list for the system.

Assign the `terminalOnly` role to `termOnlyUser` on the system resource. This allows `termOnlyUser` to use the system-level permissions (login and show status) in the `terminalOnly` role.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > Privileges

**Pasadena (192.0.2.1)**

**Last Alarm:** 21h 16m | **Last Event:** 42s

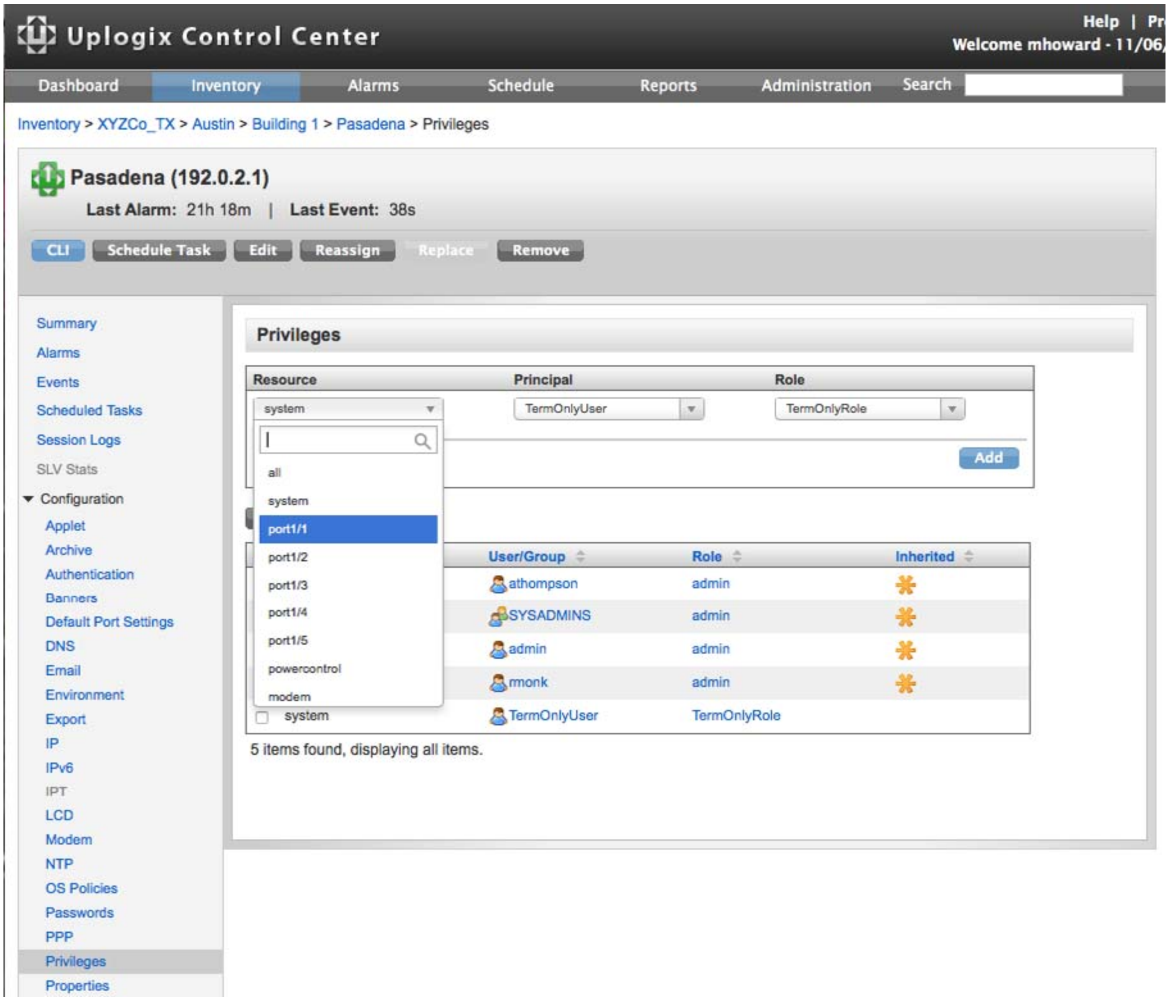
**Privileges**

| Resource | Principal | Role |
|---|---|---|
| all | TermOnlyUser | TermOnlyRole |

| User/Group | Role | Inherited |
|---|---|---|
| athompson | admin | ✱ |
| SYSADMINS | admin | ✱ |
| admin | admin | ✱ |
| rmonk | admin | ✱ |

4 items found, displaying all items.

Assign the `terminalOnly` role to `termOnlyUser` on the `port 1/1` resource. This allows `termOnlyUser` to use the port-level permissions (show status and terminal) on this port only. The `show status` permission allows the user to navigate to the port; `terminal` allows the user to open terminal sessions.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > Privileges

**Pasadena (192.0.2.1)**

**Last Alarm:** 21h 18m | **Last Event:** 38s

**Privileges**

| Resource | Principal | Role |
|---|---|---|
| system | TermOnlyUser | TermOnlyRole |

| | User/Group | Role | Inherited |
|---|---|---|---|
| | athompson | admin | ✱ |
| | SYSADMINS | admin | ✱ |
| | admin | admin | ✱ |
| | rmonk | admin | ✱ |
| □ system | TermOnlyUser | TermOnlyRole | |

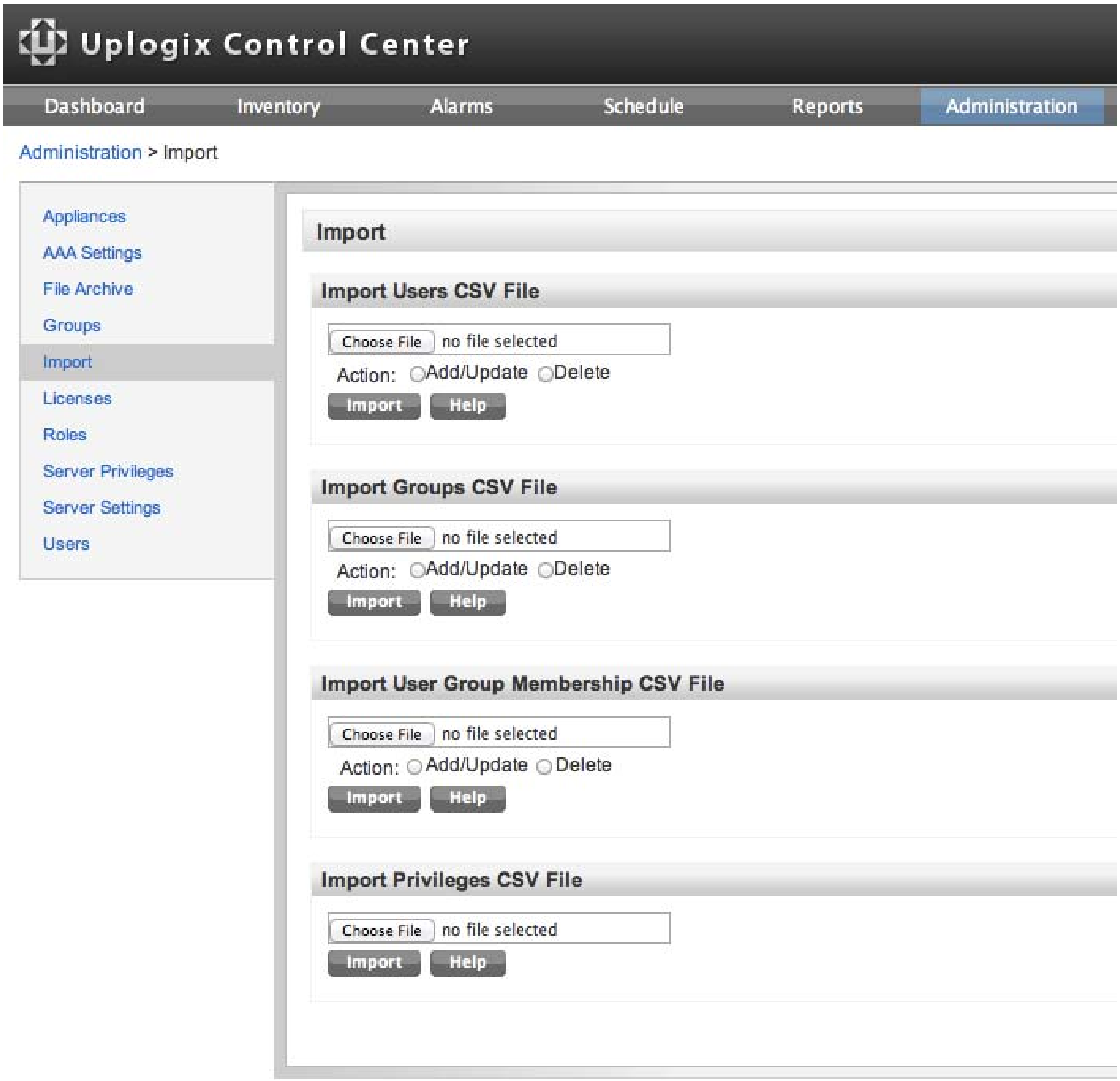
5 items found, displaying all items.

The user `termOnlyUser` can now log into the Pasadena system and open a terminal session to the device on port 1/1.

## Importing user, group, and privilege files

**Administration > Import**

The Control Center can import preformatted lists of user accounts, group accounts, privileges, and group members. This feature is useful if managing accounts and privileges in a third-party application such as Microsoft Excel. The import functions accept comma-separated value (CSV) formats.



Import Users CSV File

Choose File no file selected

Action: ○ Add/Update ○ Delete

Import Groups CSV File

Choose File no file selected

Action: ○ Add/Update ○ Delete

Import User Group Membership CSV File

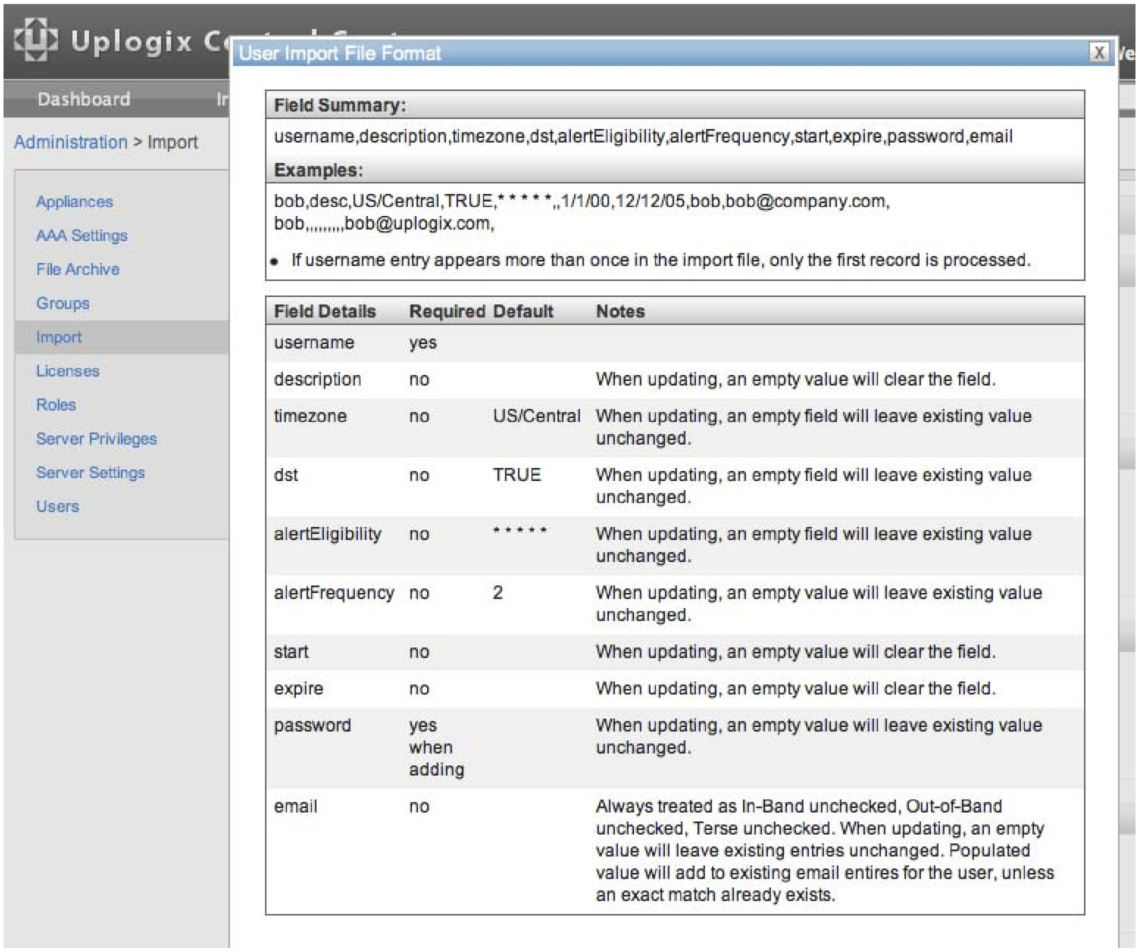
Choose File no file selected

Action: ○ Add/Update ○ Delete

Import Privileges CSV File

Choose File no file selected

For information on setting up the CSV file, click **Help** in the appropriate Import box.



**Field Summary:**

```
username,description,timezone,dst,alertEligibility,alertFrequency,start,expire,password,email
```

**Examples:**

```
bob,desc,US/Central,TRUE,* * * * *,,1/1/00,12/12/05,bob,bob@company.com,
bob,,,,,,,,,bob@uplogix.com,
```

- If username entry appears more than once in the import file, only the first record is processed.

| Field Details | Required | Default | Notes |
|---|---|---|---|
| username | yes | | |
| description | no | | When updating, an empty value will clear the field. |
| timezone | no | US/Central | When updating, an empty field will leave existing value unchanged. |
| dst | no | TRUE | When updating, an empty field will leave existing value unchanged. |
| alertEligibility | no | * * * * * | When updating, an empty field will leave existing value unchanged. |
| alertFrequency | no | 2 | When updating, an empty value will leave existing value unchanged. |
| start | no | | When updating, an empty value will clear the field. |
| expire | no | | When updating, an empty value will clear the field. |
| password | yes when adding | | When updating, an empty value will leave existing value unchanged. |
| email | no | | Always treated as In-Band unchecked, Out-of-Band unchecked, Terse unchecked. When updating, an empty value will leave existing entries unchanged. Populated value will add to existing email entires for the user, unless an exact match already exists. |

# Logs, reports, and diagnostics

The Control Center captures several kinds of information about the Local Managers it manages and the devices connected to each Local Manager, as well as user activity. This chapter describes how to access information about:

Events—major user actions such as login, logout, and changes to accounts; major automated actions

Alarms—records of changes that may trigger alerts or other actions

Logs—line-by-line records of all user activity

Reports—details on alarms, changes, events, or sessions

In this chapter:

- Setting up email, auditing, and report subscriptions—configure an account to receive reports and alerts from the Control Center
- Viewing alarms and events—global, group, and Local Manager views
- Viewing reports—receiving, downloading, and viewing reports from the Control Center
- Viewing archive status information for a Local Manager—time the last archive took place, whether it was successful, and related information
- Viewing Local Manager syslog setting—current device syslogs
- Viewing session logs and auditing users—view transcripts and configure accounts to receive reports of activities
- Sending logs to Technical Support—how to send information to the support team for troubleshooting
- Replacing a Local Manager—replace a Local Manager with a new Local Manager and transfer all configurations and data from previous Local Manager
- Shutting down the Control Center—how to properly turn off the Control Center

## Setting up email, auditing, and subscriptions

To provide subscribed information, alerts and reports, the Control Center must be configured to send email. For more information, see Configuring mail settings.

To receive alerts from Local Managers and reports from the Control Center, the user account must be:

- configured with an email address where alerts from the Local Managers and reports from the Control Center can be received
- subscribed to the desired alerts and reports

To audit other accounts, the account must be:

- configured with an email address where alerts and reports are received from the Control Center
- configured to audit at least one other account
- subscribed to the appropriate session report (hourly, daily, weekly, or monthly) for the account to be audited

These can be configured on the Create/Edit User or Create/Edit Group pages. Click the right arrows ▸ to expand the collapsed sections of these pages.

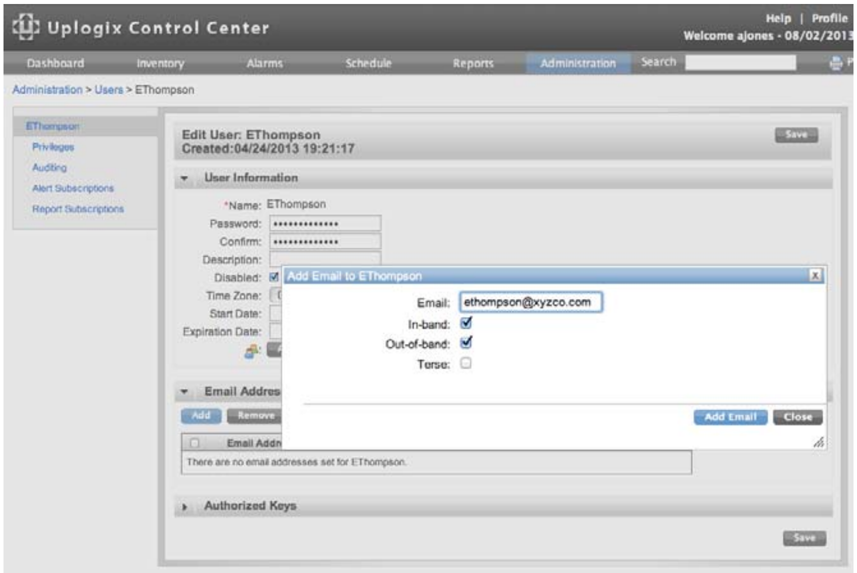
### Configuring an account to receive email from the Control Center

For an account to receive alerts (from Local Managers) or reports (from the Control Center) by email, at least one email address where the user can receive alerts and reports (including user audits) must be entered.

The in-band and out-of-band settings only apply to information that Local Managers email to you. By default, the address entered is used in both situations.

Select **Terse** to limit the message to a subject line only. Use the Terse setting for email directed to a pager or cell phone. Click **Add Email** when all the email information has been entered and then **Save** on the edit user details screen.

> To remove an email address, use the **clear** button rather than manually clearing the address field.



Edit User: EThompson
Created:04/24/2013 19:21:17

*Name: EThompson
Password: ••••••••••••••
Confirm: ••••••••••••••
Description:
Disabled: ☑
Time Zone:
Start Date:
Expiration Date:

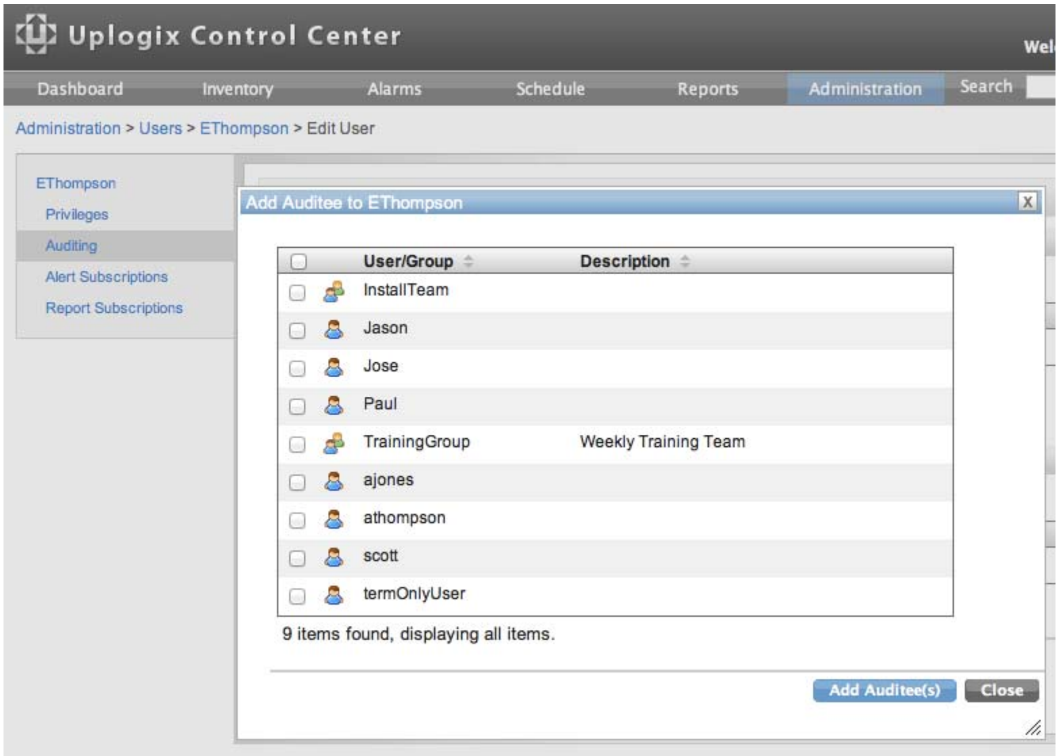
Add Email to EThompson

Email: ethompson@xyzco.com
In-band: ☑
Out-of-band: ☑
Terse: □

There are no email addresses set for EThompson.

## Configuring the account to audit others and to be audited

To allow the user to audit others, select the user from the User menu under Administration by clicking on the **User ID**. Then from the left menu, select **Auditing**. In the auditing detail page, add auditees by clicking the **Add** button and selecting users from the checklist. Click **Add Auditee(s)**.



| □ | | User/Group | Description |
|---|---|---|---|
| □ | | InstallTeam | |
| □ | | Jason | |
| □ | | Jose | |
| □ | | Paul | |
| □ | | TrainingGroup | Weekly Training Team |
| □ | | ajones | |
| □ | | athompson | |
| □ | | scott | |
| □ | | termOnlyUser | |

9 items found, displaying all items.

To allow another user to audit this user, open the Auditor Picker by clicking **Add**. Add auditors following the same steps as adding auditees.

To allow this user to audit others, the user must also be subscribed to session reports. See Subscribing to reports.

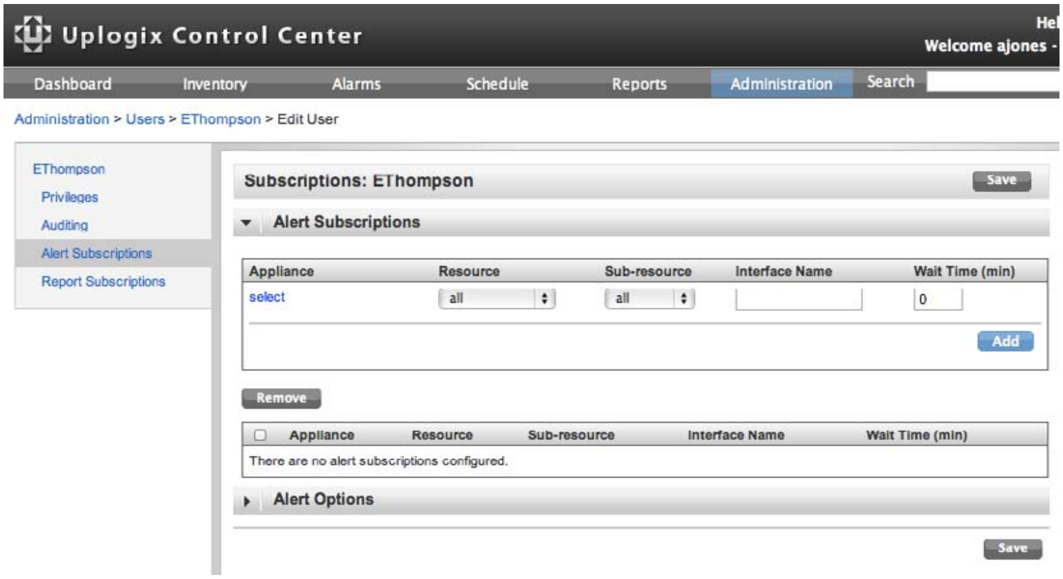
## Subscribing to alerts

**Administration > Users > Edit**

Individual user accounts may subscribe to alerts.

Subscribe the account to alerts on the desired resources.

- Subscription resources are individual ports, modem, powercontrol, system, or all.
- Sub-resources are interface, chassis, or all.



| Appliance | Resource | Sub-resource | Interface Name | Wait Time (min) |
|---|---|---|---|---|
| select | all | all | | 0 |

| ☐ Appliance | Resource | Sub-resource | Interface Name | Wait Time (min) |
|---|---|---|---|---|
| There are no alert subscriptions configured. | | | | |

Click **Save** at the top or bottom of the page when finished setting up the account information.

## Subscribing to reports

**Administration > Users**

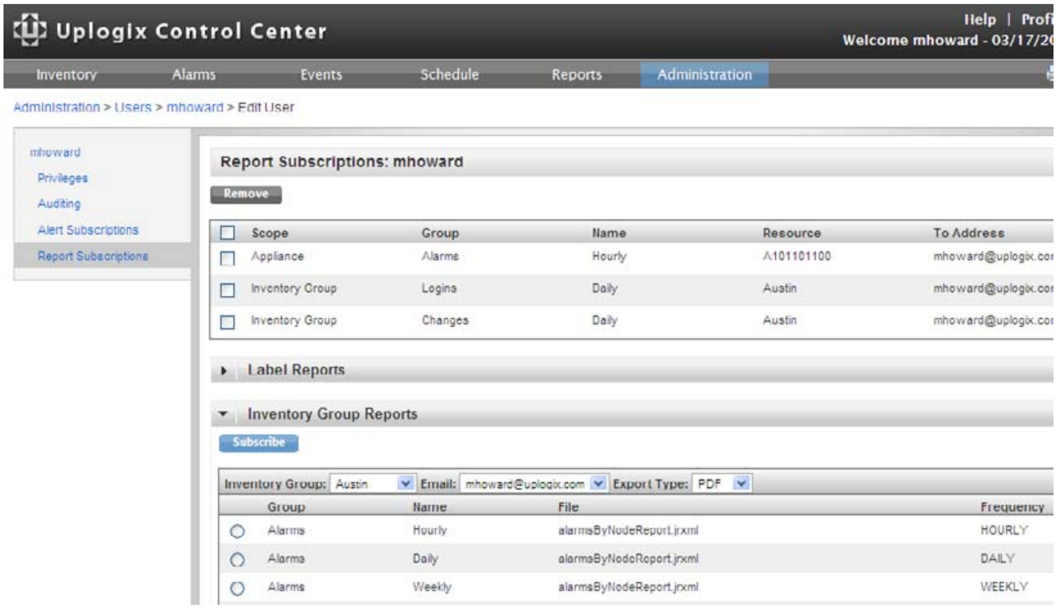
**Administration > Groups**

To subscribe an account to reports, go to **Administration > Users** or **Administration > Groups** and select the User ID associated with the user. Then from the left menu, select **Report Subscriptions**. This link is only active if the account is configured with an email address.

The report subscription specifies how often the report is created and emailed.

The report subscriptions link takes you to the Report Subscriptions page.

Choose the Local Manager inventory group or port from which to receive reports, and the file format for the report - CSV, HTML, or PDF. Click the Subscribe links to subscribe to the desired reports. Depending on the file format selected, the user may receive zipped files.



| ☐ Scope | Group | Name | Resource | To Address |
|---|---|---|---|---|
| ☐ Appliance | Alarms | Hourly | A101101100 | mhoward@uplogix.co |
| ☐ Inventory Group | Logins | Daily | Austin | mhoward@uplogix.co |
| ☐ Inventory Group | Changes | Daily | Austin | mhoward@uplogix.co |

Inventory Group: Austin Email: mhoward@uplogix.com Export Type: PDF

| | Group | Name | File | Frequency |
|---|---|---|---|---|
| ○ | Alarms | Hourly | alarmsByNodeReport.jrxml | HOURLY |
| ○ | Alarms | Daily | alarmsByNodeReport.jrxml | DAILY |
| ○ | Alarms | Weekly | alarmsByNodeReport.jrxml | WEEKLY |

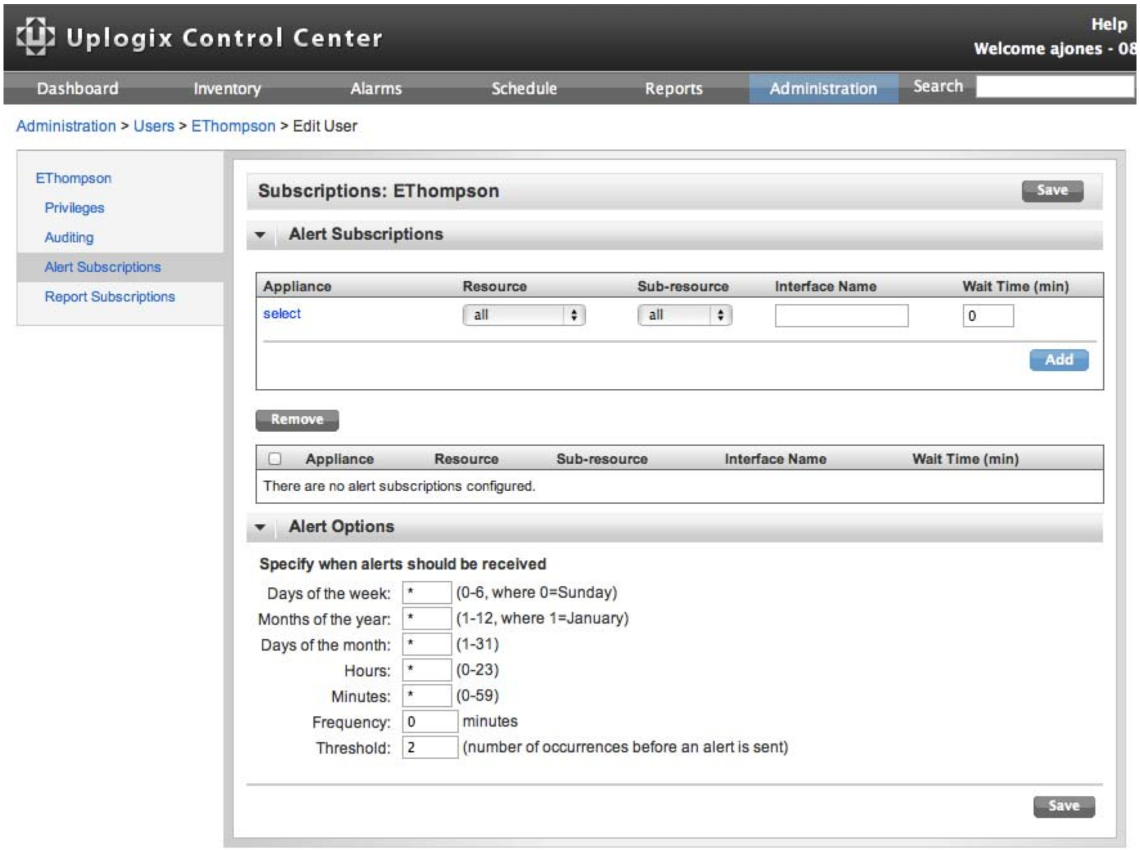
Session reports are available in the Principal Reports area at the bottom of the page. You can only subscribe to session reports on accounts that are configured as auditees on your user account. For more information on this, see Configuring the account to audit others and to be audited.

## Specifying when and how often the subscriber receives alerts

**Administration > Users > User ID > Alert Subscriptions**

By default, alerts are emailed to subscribed users every two minutes while they are active.

Limit the number of alerts that a user receives with the Alert Options settings on the Alert Subscriptions page.



Administration > Users > EThompson > Edit User

Subscriptions: EThompson

Alert Subscriptions

| Appliance | Resource | Sub-resource | Interface Name | Wait Time (min) |
|---|---|---|---|---|
| select | all | all | | 0 |

| □ | Appliance | Resource | Sub-resource | Interface Name | Wait Time (min) |
|---|---|---|---|---|---|
| There are no alert subscriptions configured. | | | | | |

Alert Options

**Specify when alerts should be received**

| | | |
|---|---|---|
| Days of the week: | * | (0-6, where 0=Sunday) |
| Months of the year: | * | (1-12, where 1=January) |
| Days of the month: | * | (1-31) |
| Hours: | * | (0-23) |
| Minutes: | * | (0-59) |
| Frequency: | 0 | minutes |
| Threshold: | 2 | (number of occurrences before an alert is sent) |

**Alert Options** specify the times, days, and frequency when alerts may be emailed to this user. The limit options are as follows. Leave the wildcard * character in the fields you do not wish to restrict.

| Option | Description |
|---|---|
| Days of the week | Limit the receipt of alerts to certain days of the week. Specify the range of days numerically with 1 representing Monday.<br>For example, if the user should only receive alerts from Friday through Monday, enter 5-1. |
| Months of the year | Limit the receipt of alerts to certain months. Specify the beginning and ending month by number.<br>For example, if the user should only receive alerts from September through May, enter 9-6. |
| Days of the month | Limit the receipt of alerts to certain days of the month. Specify which days by number.<br>For example, if the user is on call only from the 16th to the end of the month, enter 16-31. |
| Hours | Hours are specified in UTC time.<br>Limit the receipt of alerts to a specific time of day. Specify start and end time.<br>For example, if the user is in the US central time zone (UTC -6:00) and needs to receive alerts generated between 5 p.m. and midnight, convert these times to UTC (00:00 to 06:00) and enter the hours as 23-6. |
| Minutes | Limit the receipt of alerts to a specific part of each hour. Specify the start and end minutes.<br>For example, if the user should only receive alerts during the first 15 minutes of every hour, enter 00-15. |
| Frequency | Set how often the Control Center sends alerts. Alerts can be sent as seldom as every 120 minutes or as often as every minute. |
| Threshold | If the user would like to receive alerts after a specific number of occurrences of the alert, set the number of occurrences as the threshold. |

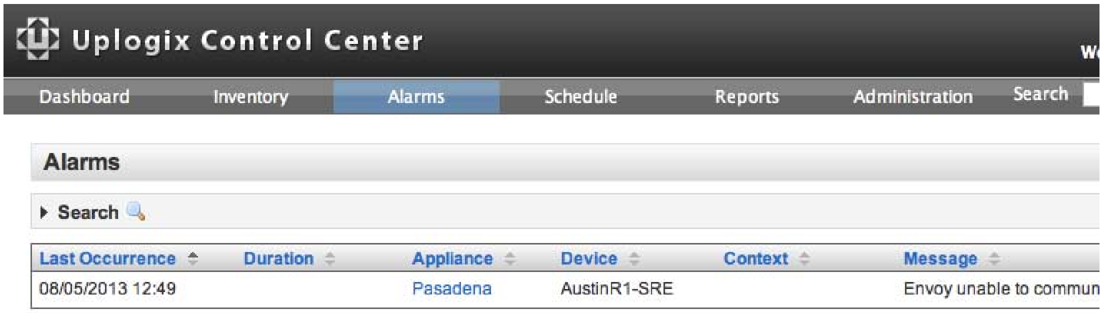
## Viewing alarms and events

Alarms and events are similar. Both are logged. An alarm differs from an event as follows:

- An alarm has a duration—it remains active as long as the triggering condition exists.
- An alarm has a state—current or cleared.

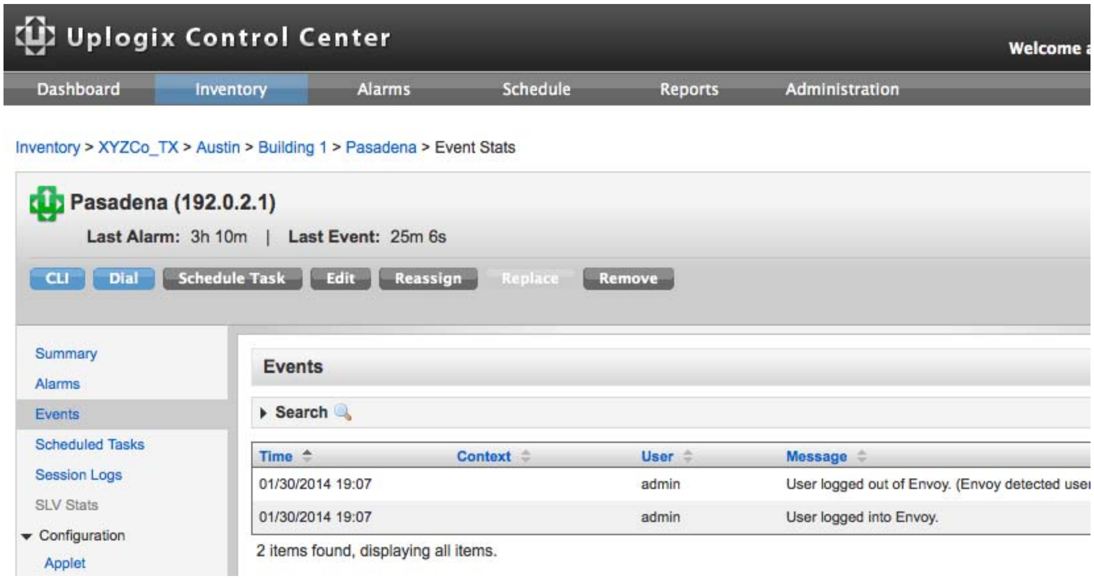
The Alarms page provides a quick overview of active alarms on any of the managed Local Managers.

The alarm summary shows when an alarm was last generated, how long it has been active, which Local Manager it occurred on, and a message detailing the alarm. If the alarm involves a specific device and/or interface, that information is displayed as well. Alarms can be filtered by Local Manager, and by number of results. To quickly access the Local Manager reporting the alarm, click the hostname in the Local Manager column to bring up the Local Manager detail page.



| Last Occurrence | Duration | Appliance | Device | Context | Message |
|---|---|---|---|---|---|
| 08/05/2013 12:49 | | Pasadena | AustinR1-SRE | | Envoy unable to commun |

To view events on a Local Manager, navigate to the device and select Events from the menu. The Events page shows recent events for the selected Local Manager. Each entry shows the time of the event, the device and interface on which it occurred (if available), the user, and a descriptive message.



Pasadena (192.0.2.1)

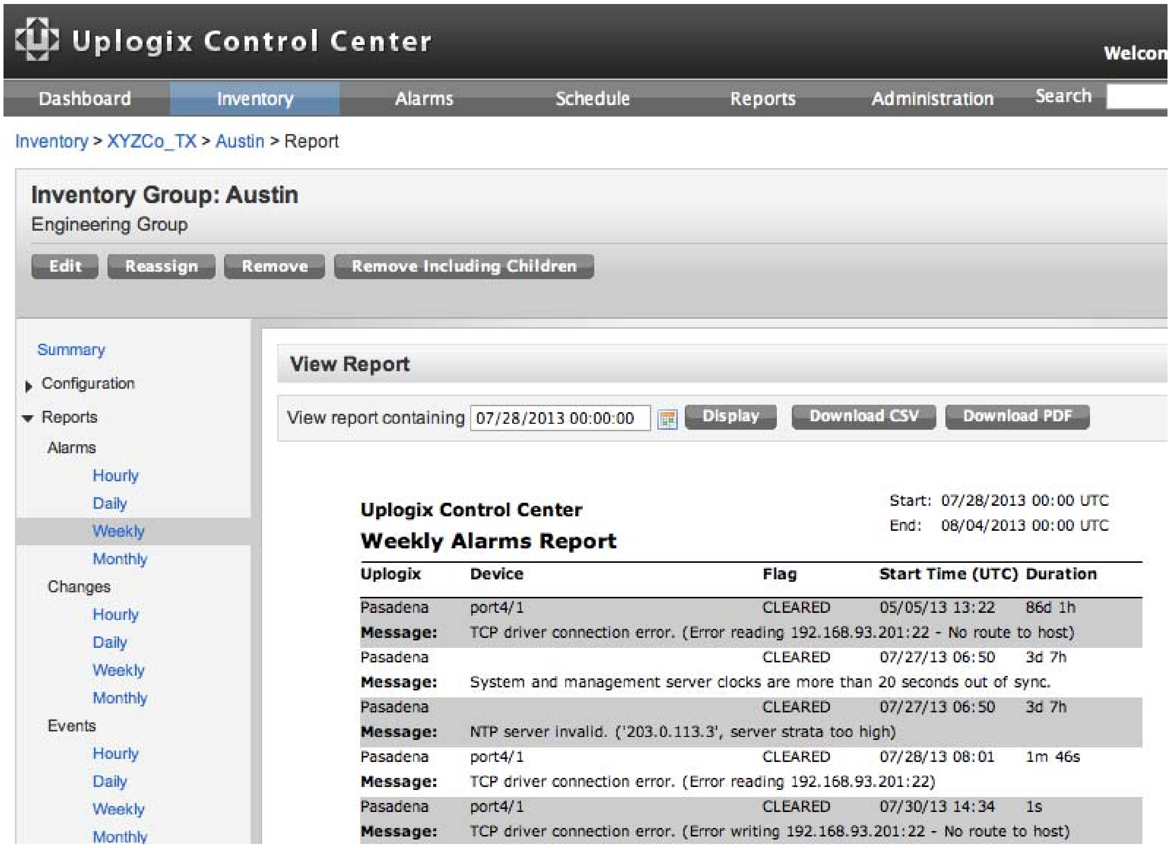
Last Alarm: 3h 10m | Last Event: 25m 6s

| Time | Context | User | Message |
|---|---|---|---|
| 01/30/2014 19:07 | | admin | User logged out of Envoy. (Envoy detected use |
| 01/30/2014 19:07 | | admin | User logged into Envoy. |

2 items found, displaying all items.

Search the list of events by entering a text string in the search box, selecting the type of search, and clicking **Search.**

Alarm and event reports for inventory groups can also be viewed. Go to the appropriate group detail page and select the report that spans the time period of interest.



Inventory Group: Austin

Engineering Group

View report containing 07/28/2013 00:00:00

Uplogix Control Center

Weekly Alarms Report

Start: 07/28/2013 00:00 UTC

End: 08/04/2013 00:00 UTC

| Uplogix | Device | Flag | Start Time (UTC) | Duration |
|---|---|---|---|---|
| Pasadena | port4/1 | CLEARED | 05/05/13 13:22 | 86d 1h |
| **Message:** | TCP driver connection error. (Error reading 192.168.93.201:22 - No route to host) | | | |
| Pasadena | | CLEARED | 07/27/13 06:50 | 3d 7h |
| **Message:** | System and management server clocks are more than 20 seconds out of sync. | | | |
| Pasadena | | CLEARED | 07/27/13 06:50 | 3d 7h |
| **Message:** | NTP server invalid. ('203.0.113.3', server strata too high) | | | |
| Pasadena | port4/1 | CLEARED | 07/28/13 08:01 | 1m 46s |
| **Message:** | TCP driver connection error. (Error reading 192.168.93.201:22) | | | |
| Pasadena | port4/1 | CLEARED | 07/30/13 14:34 | 1s |
| **Message:** | TCP driver connection error. (Error writing 192.168.93.201:22 - No route to host) | | | |

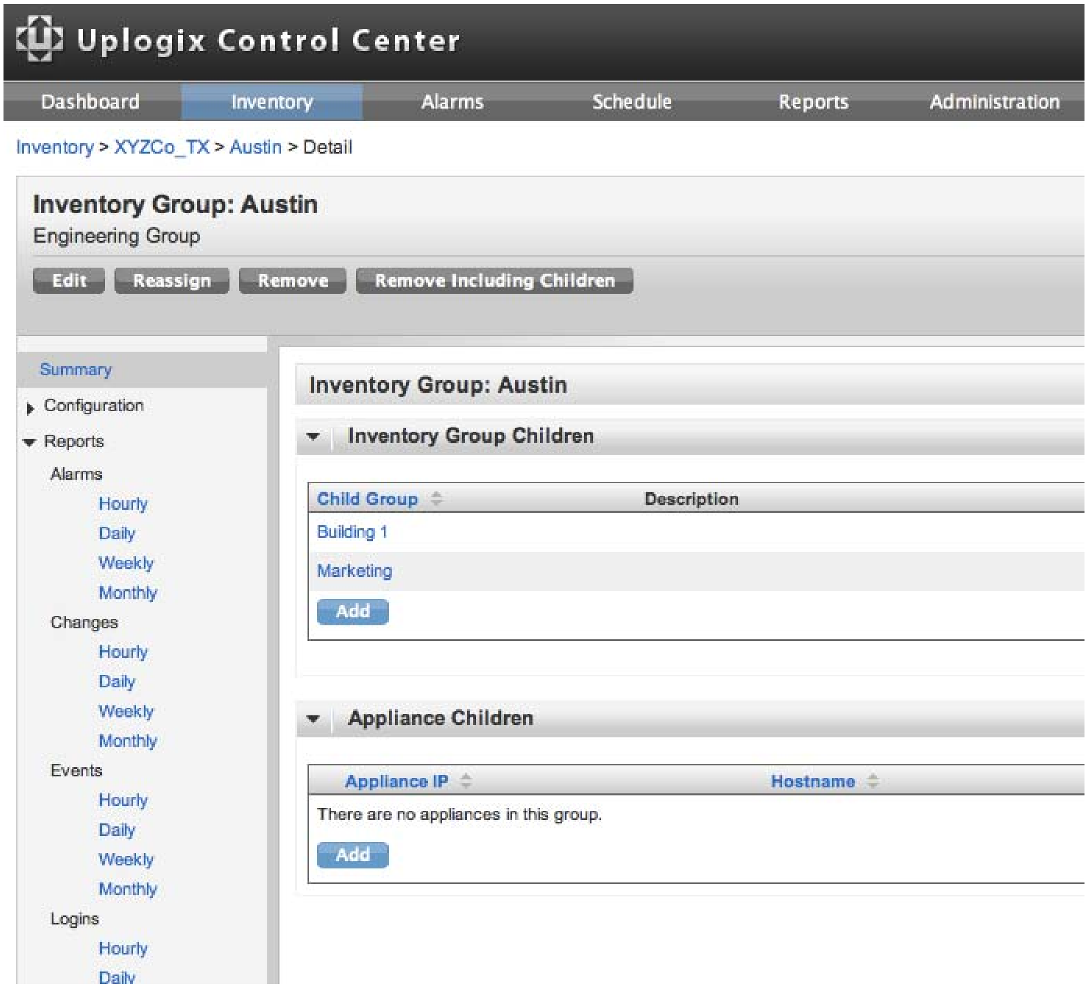
## Viewing reports

The Control Center regularly archives data received from Local Managers. Reports can be generated from the inventory group and Local Manager level. A report from the inventory group level includes information from all Local Managers within the inventory group, while the Local Manager level only includes the specific Local Manager.

### Inventory group reports

**Inventory > group detail > Reports**

Access inventory group reports from the Group Detail page. Expand the Reports menu and click the link for the report of interest.



Inventory Group: Austin

Engineering Group

Inventory Group: Austin

Inventory Group Children

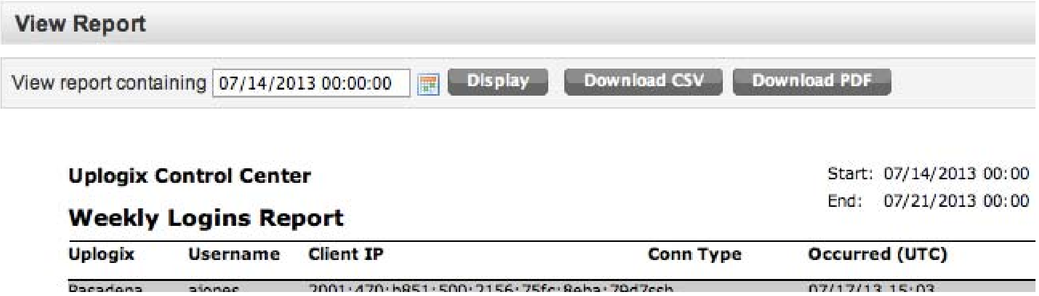
| Child Group | Description |
|---|---|
| Building 1 | |
| Marketing | |

Appliance Children

| Appliance IP | Hostname |
|---|---|
| There are no appliances in this group. | |

If necessary, specify the desired range of times.

Reports start at the beginning of the specified time span. For example, a weekly report begins on Sunday rather than showing the previous seven days; a monthly report begins on the first of the month rather than showing the previous 30 days.



View report containing 07/14/2013 00:00:00

Uplogix Control Center

Weekly Logins Report

Start: 07/14/2013 00:00

End: 07/21/2013 00:00

| Uplogix | Username | Client IP | Conn Type | Occurred (UTC) |
|---|---|---|---|---|
| Pasadena | ajones | 2001:470:b851:500:2156:75fc:8eba:79d7ccb | | 07/17/13 15:03 |

Once the time period of interest is specified, click **Display**, **Download PDF** or **Download CSV** as appropriate.

## Local Manager reports

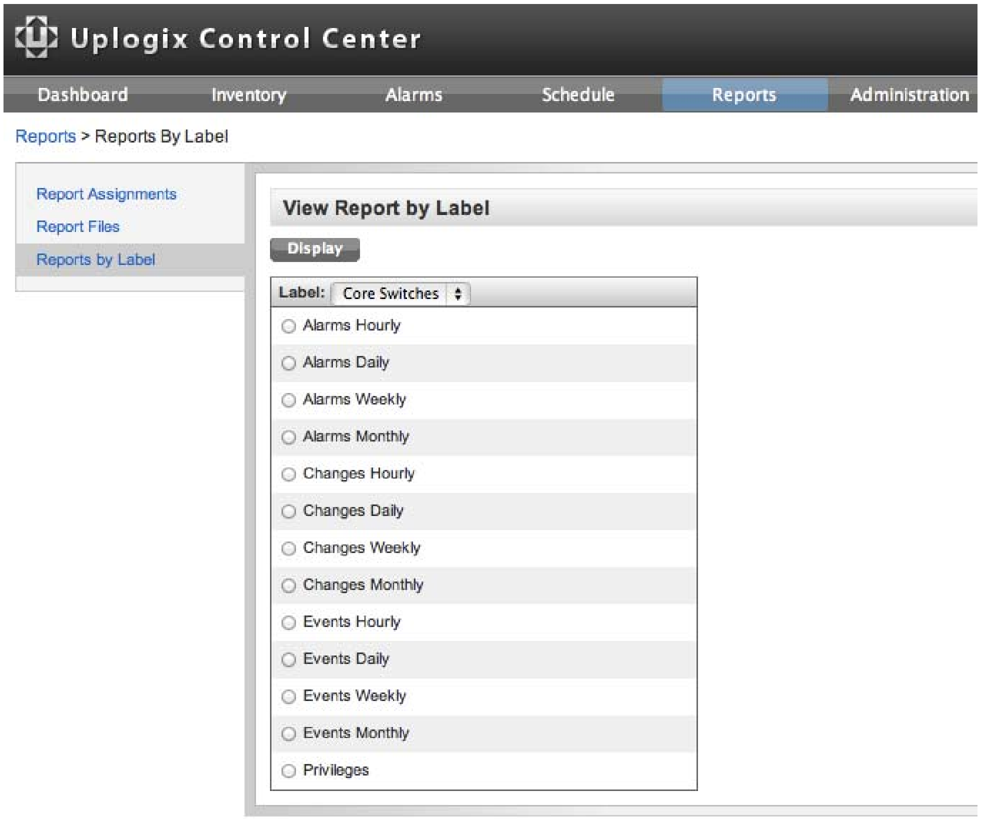
**Inventory > Local Manager > Reports**

Access Local Manager specific reports from the reports menu on the Local Manager page.

## Reports by label

**Reports > Reports by Label**

Most reports are available on the Group Detail, Local Manager Detail, and Port Detail pages. However, reports can also be generated for custom labels. If labels have been created for managed devices (see Creating categories for managing devices), standard reports for each label are available on the Reports by Label page.



Label: Core Switches

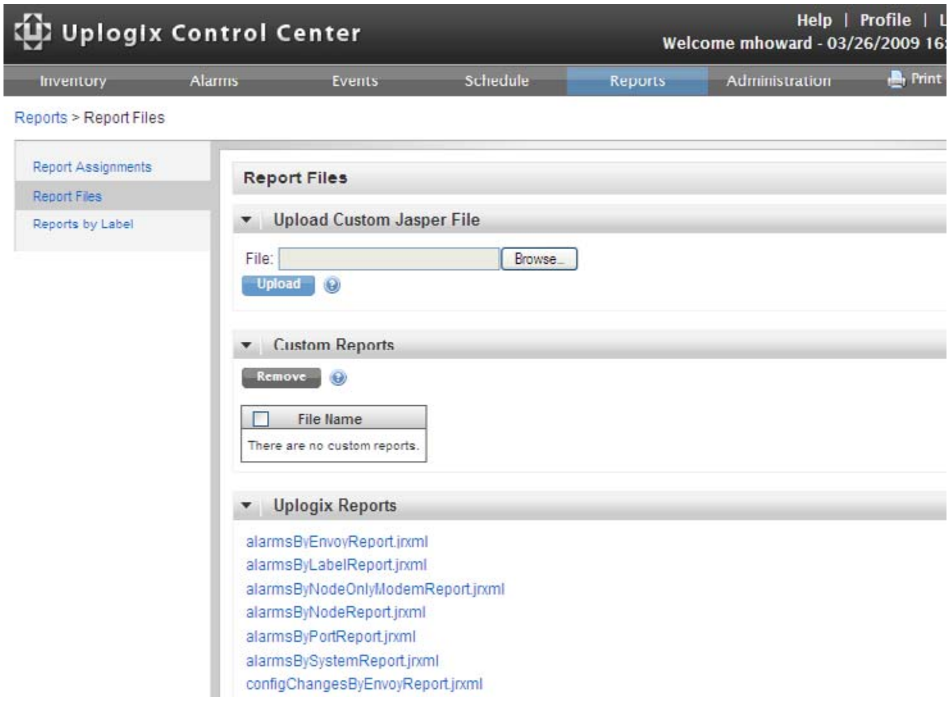
○ Alarms Hourly
○ Alarms Daily
○ Alarms Weekly
○ Alarms Monthly
○ Changes Hourly
○ Changes Daily
○ Changes Weekly
○ Changes Monthly
○ Events Hourly
○ Events Daily
○ Events Weekly
○ Events Monthly
○ Privileges

## Report files

**Reports > Report Files**

Reports are generated from Jasper XML files. Several are included with the Control Center, but custom files can also be uploaded. Once uploaded, these files are available for use on the Report Assignments page.

After creating a custom Jasper file, browse to find it and click **upload**. The file is now available from the list of files on the Report Assignments page.



There are no custom reports.

alarmsByEnvoyReport.jrxml
alarmsByLabelReport.jrxml
alarmsByNodeOnlyModemReport.jrxml
alarmsByNodeReport.jrxml
alarmsByPortReport.jrxml
alarmsBySystemReport.jrxml
configChangesByEnvoyReport.jrxml

Please contact support@uplogix.com if you need assistance with this feature.

## Report assignments

**Reports > Report Assignments**

The Control Center can generate a wide range of reports on a variety of subjects. These correspond to the reports listing seen on the Group Detail, Local Manager Detail, and Port Detail pages.

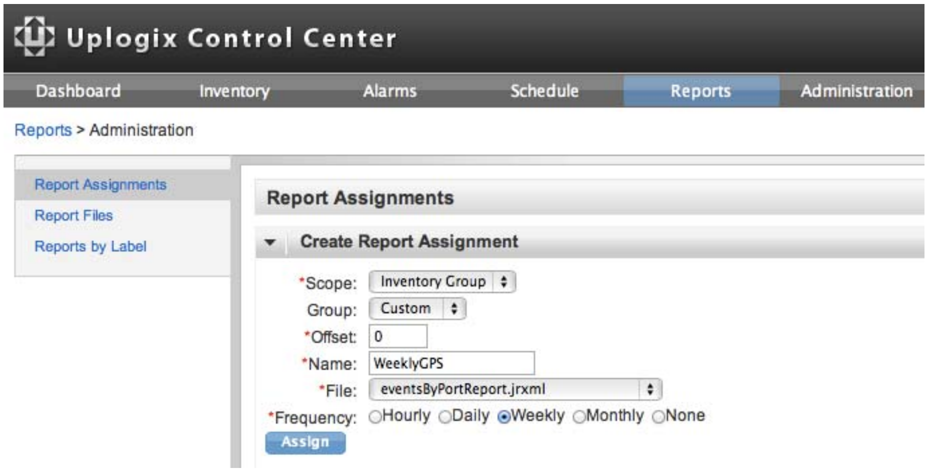
Reports are generated in various formats and emailed to system users or groups

Use the Report Assignments page to schedule any of the existing reports.

To create a new report assignment:

- Choose the **scope**—this may be label, inventory group, system, or port.
- Choose a **group**—this may be alarms, changes, events, logins, custom, or none.
- If there is at least one report in the group chosen within the selected scope (for example, alarm reports on inventory group pages), select the **offset**. This specifies the report's position in the list. An offset of 0 places the report first on the list.
- Name the report, select the appropriate jrxml format file, and choose the frequency of report generation.

In the following example, a weekly report of GPS events on managed devices is created. The report is available from inventory group pages under a custom report grouping.

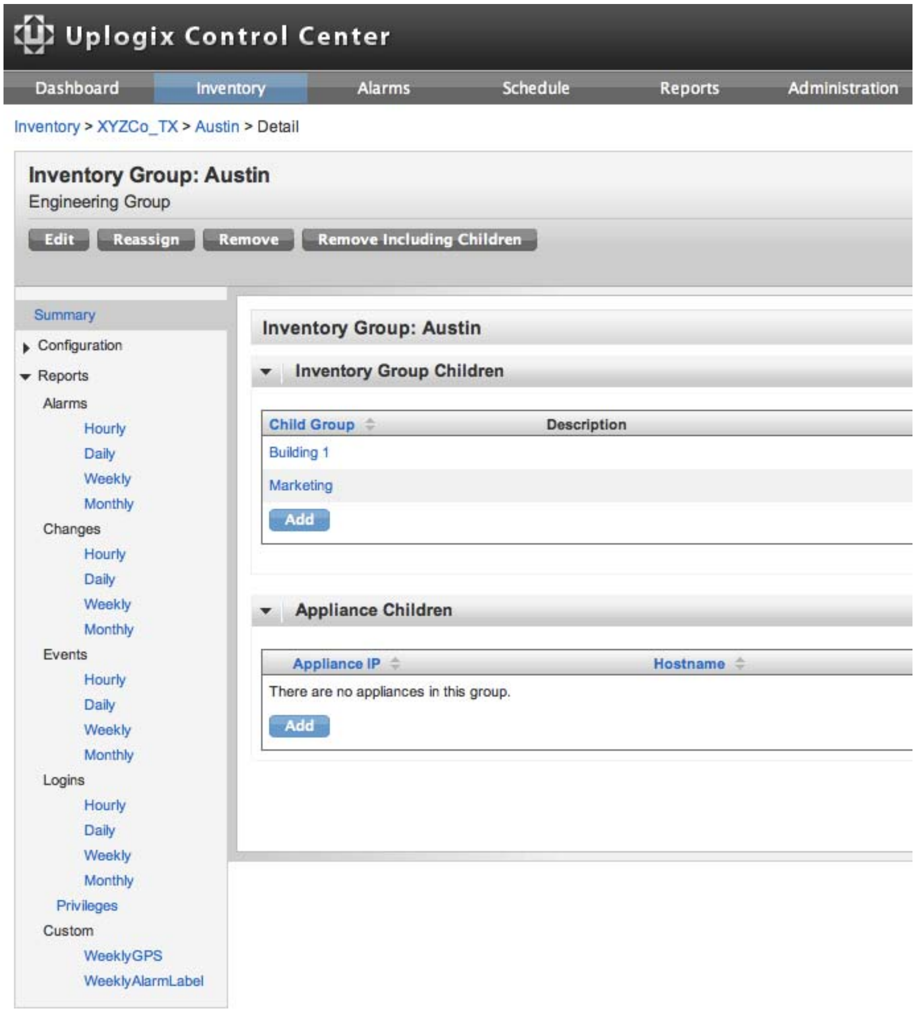


Report Assignments

Create Report Assignment

*Scope: Inventory Group
Group: Custom
*Offset: 0
*Name: WeeklyGPS
*File: eventsByPortReport.jrxml
*Frequency: ○Hourly ○Daily ●Weekly ○Monthly ○None

Click **Assign** to create the report and assign it to the specified scope. In this example, the report is assigned to inventory group pages. The report is now available.



Inventory Group: Austin

Engineering Group

Inventory Group: Austin

Inventory Group Children

| Child Group | Description |
|---|---|
| Building 1 | |
| Marketing | |

Appliance Children

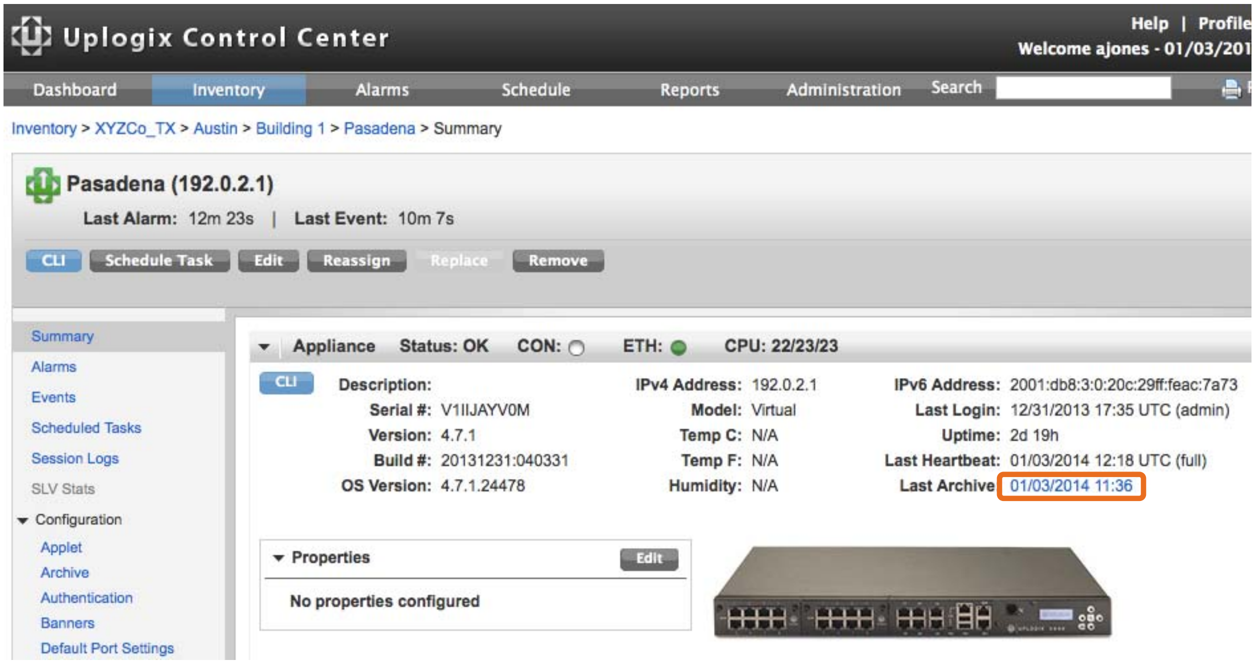
| Appliance IP | Hostname |
|---|---|
| There are no appliances in this group. | |

Although an existing report assignment cannot be edited, a new report assignment with the same name can be created. This overwrites the existing report assignment.

## Viewing archive status information for a Local Manager

**Inventory > Local Manager Summary**

Archive information sent from the Local Manager to the Control Center includes: activity logs, SLV stats, configuration files, device changes and login sessions. To view information about the last date archive operation, click on the time of the last archive on the Local Manager summary page. A pop-up will show information about the last data archive operation.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > Summary

**Pasadena (192.0.2.1)**

**Last Alarm:** 12m 23s | **Last Event:** 10m 7s

**Appliance** **Status: OK** **CON:** ○ **ETH:** ● **CPU: 22/23/23**

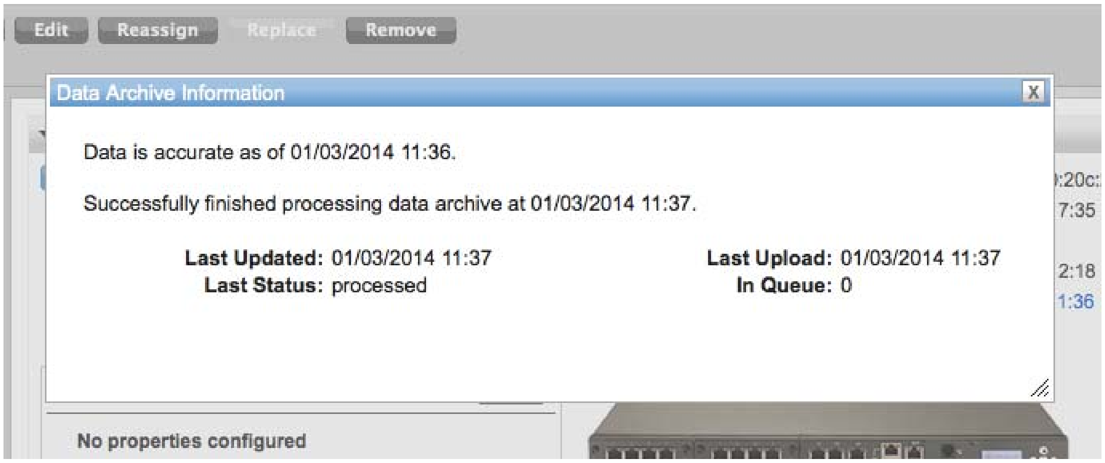
**Description:**
**Serial #:** V1IIJAYV0M
**Version:** 4.7.1
**Build #:** 20131231:040331
**OS Version:** 4.7.1.24478

**IPv4 Address:** 192.0.2.1
**Model:** Virtual
**Temp C:** N/A
**Temp F:** N/A
**Humidity:** N/A

**IPv6 Address:** 2001:db8:3:0:20c:29ff:feac:7a73
**Last Login:** 12/31/2013 17:35 UTC (admin)
**Uptime:** 2d 19h
**Last Heartbeat:** 01/03/2014 12:18 UTC (full)
**Last Archive** 01/03/2014 11:36

**Properties**

No properties configured



**Data Archive Information**

Data is accurate as of 01/03/2014 11:36.

Successfully finished processing data archive at 01/03/2014 11:37.

**Last Updated:** 01/03/2014 11:37
**Last Status:** processed

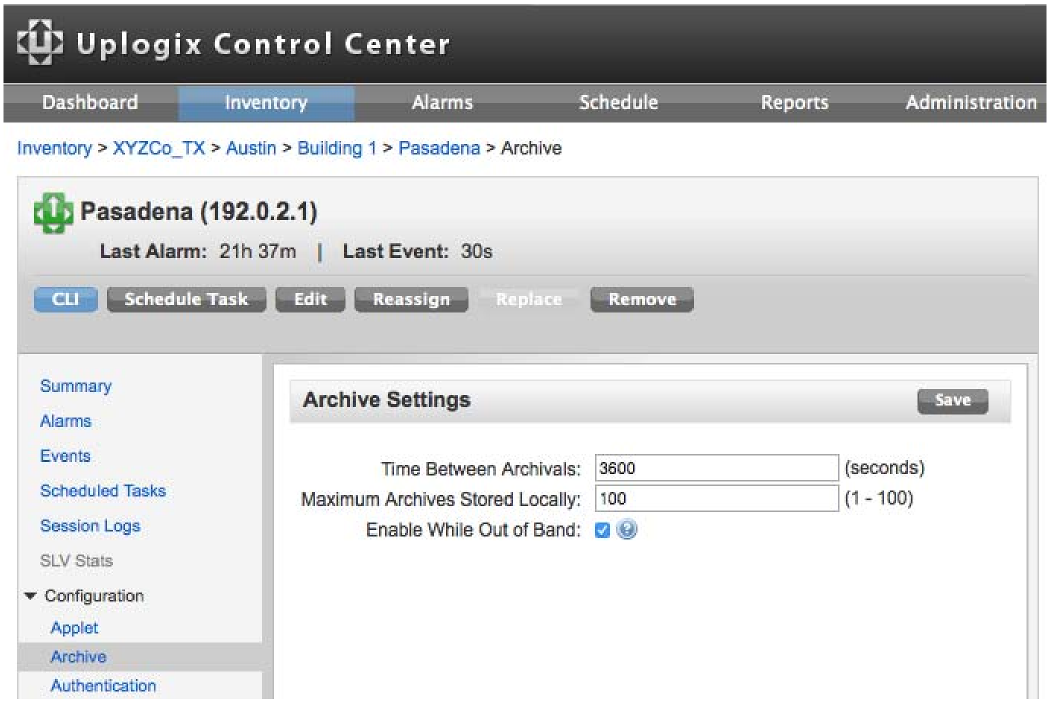
**Last Upload:** 01/03/2014 11:37
**In Queue:** 0

No properties configured

## Archive settings

**Inventory > Local Manager Page > Configuration > Archive**

The archive process is configured by default to run only over an in-band connection, but archive can be enabled via an out-of-band connection by clicking on the check box in archive settings. Before enabling archive via an out-of-band, consider the bandwidth of the out-of-band connection, system configuration, and the frequency setting of the archive task. Archive over out-of-band for deployments with a small bandwidth connections, large amounts of configuration data, and frequent archive actions is not recommended.



Time Between Archivals: 3600 (seconds)
Maximum Archives Stored Locally: 100 (1 - 100)
Enable While Out of Band: ☑

## Viewing Local Manager Syslog Setting

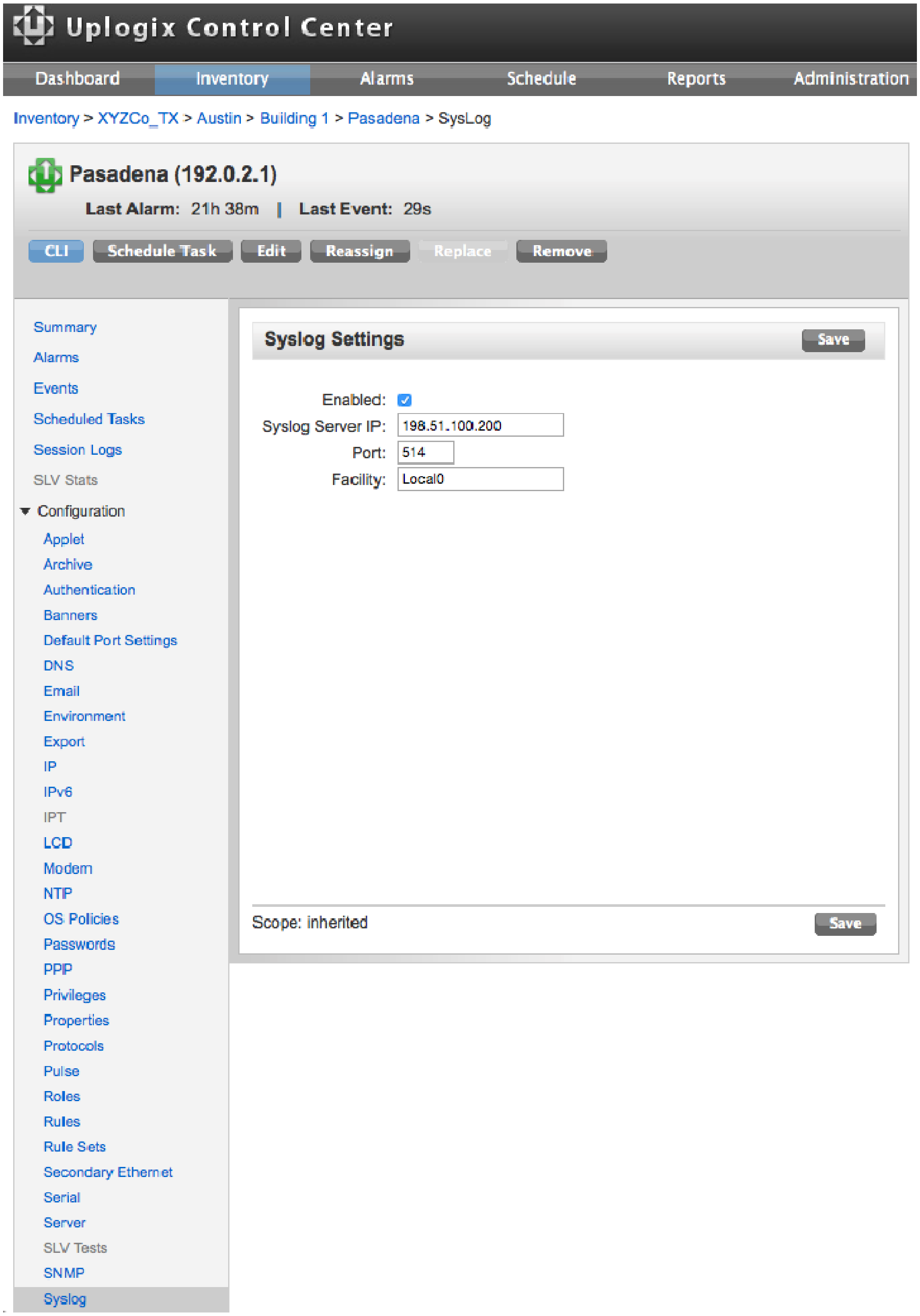
**Inventory > Local Manager Page > Configuration > Syslog**

Syslog forwarding can be configured on the Configuration menu of the Local Manager page, or from the Uplogix command line with the `config system syslog-options` command.

In some advanced drivers, the console messages can be forwarded as syslog messages. This is configured from the port's config device logging command.

If device syslog forwarding is enabled, a connected device's console messages will be reformatted as syslog messages and forwarded to external syslog servers. The source IP address of the syslog message will be the Local Manager's management IP, so multiple facilities should be used to classify the messages for various devices from the same Local Manager.

When syslog forwarding is enabled on the Local Manager for a given facility, syslog forwarding will be enabled on all Local Manager ports that are configured (i.e., not native ports) for the same facility. If you do not want all ports to perform syslog forwarding or don't want all ports forwarding messages to the same syslog facility, you must log into the Local Manager and navigate to the port(s) you want to change and update the settings using the `config device syslog` command.



Enabled: ☑

Syslog Server IP: 198.51.100.200

Port: 514

Facility: Local0

Scope: inherited

## Viewing session logs and auditing users

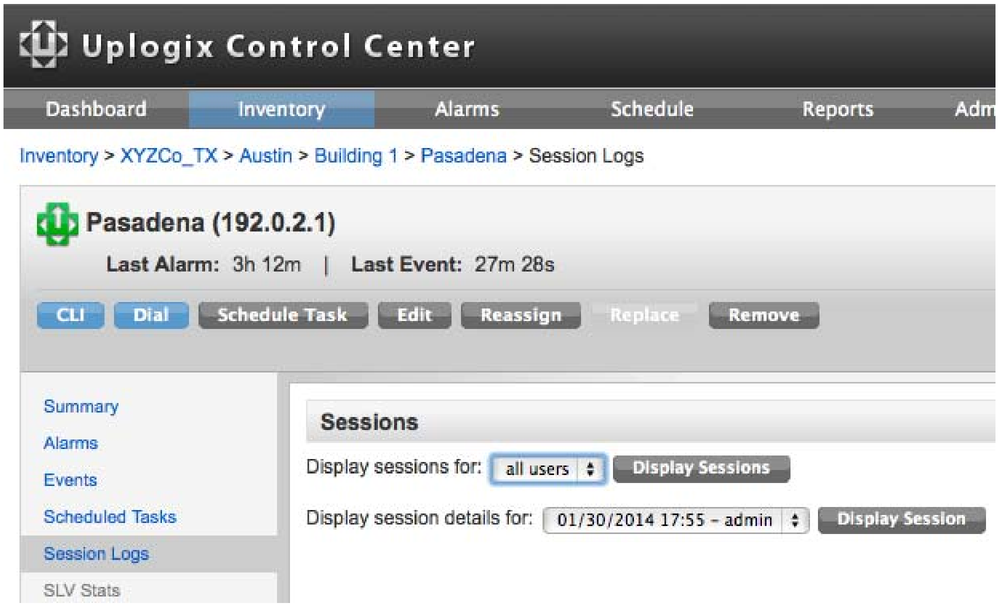
View transcripts of individual LMS command line sessions that have ended. And, configure accounts to receive reports of individual accounts' activities on the Control Center.

### Local Manager session logs

**Inventory > Local Manager Page > Session Logs**

Every command line interaction between a user and the Local Manager is logged and subsequently archived on both the Local Manager and the Control Center. To view archived sessions, click **Session Logs** from the left menu of the Local Manager page.

A list of archived sessions by user can be displayed, just as with the Uplogix LMS command line using the `show sessions` command. Select the user from the list and click **Display Sessions**. To view the details of a listed session, click **Display Session** to the right of the timestamp. This is equivalent to the `show session` command.



Session information is updated every 30 seconds on the Local Manager, but the actual recorded transaction is transferred during the archive process which happens every hour by default.

Session details are not available for sessions in progress.

### Auditing user activities on the Control Center

**Administration > Users > User Name > Auditing**

To audit users, your account configuration must include:

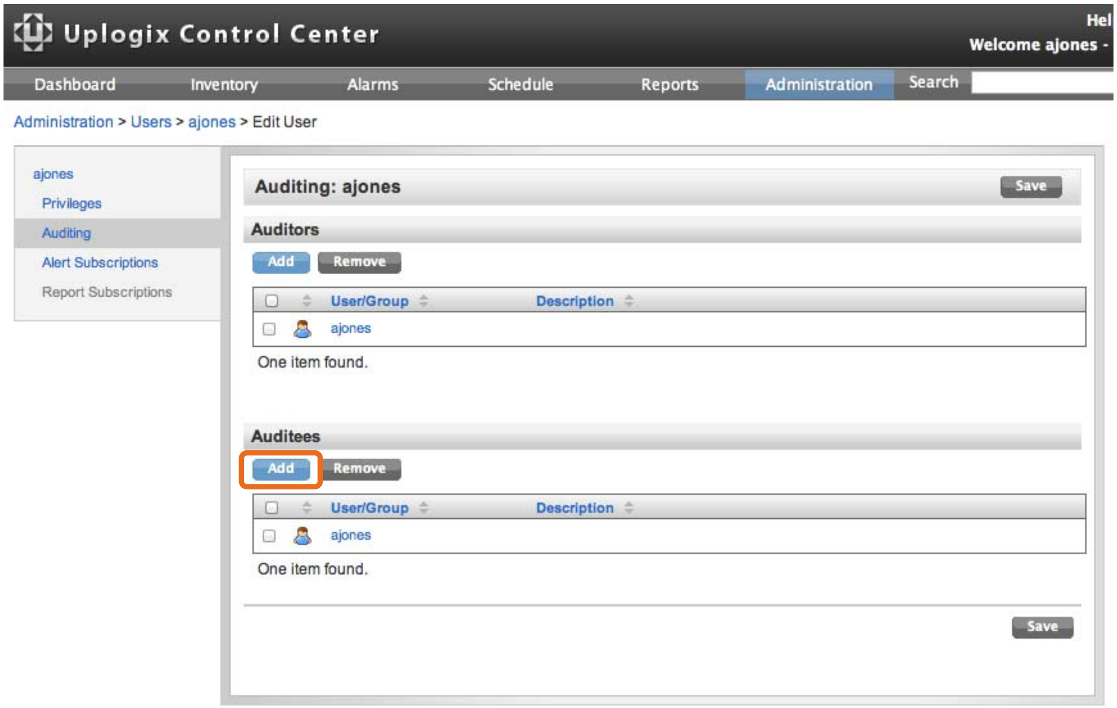
- A valid email address
- The permission to audit the user as one of your auditees
- A report subscription to the appropriate session report on each user to be audited. See Setting up email, auditing, and subscriptions.

The reports are emailed as .pdf, .html, or .csv files.

The following example shows how to configure a user to audit another user. In this example, the user `ajones` (who has the admin role on the Control Center) will be configured to audit another user, `Ethompson`.

Every user account is automatically able to audit itself. To audit others, auditees must be added to the auditor's user profile.

From the Auditing menu, click **Add** under Auditees.



Administration > Users > ajones > Edit User

Auditing: ajones

Auditors

| □ | User/Group | Description |
|---|---|---|
| □ | ajones | |

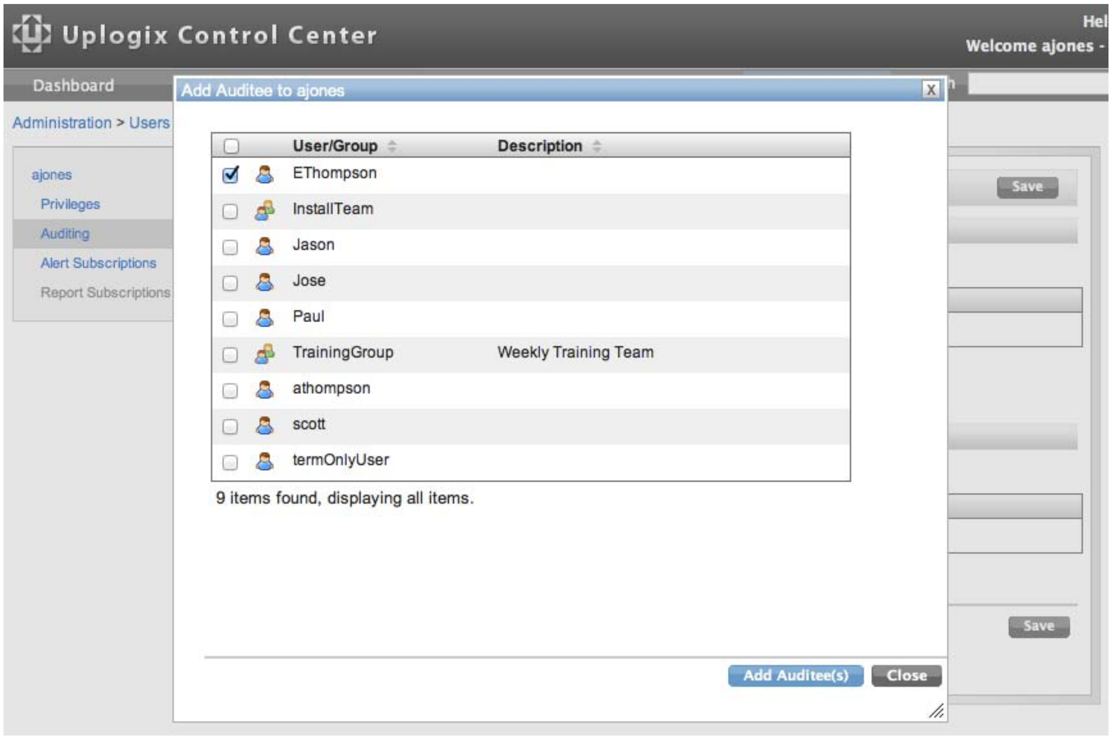
One item found.

Auditees

| □ | User/Group | Description |
|---|---|---|
| □ | ajones | |

One item found.

From the pop-up, select the user to be audited, in this case, Ethompson and click **Add Auditee(s)**. Click **Save** at the top or bottom of the page and the auditees are added to ajones auditee listing.



Add Auditee to ajones

| □ | User/Group | Description |
|---|---|---|
| ☑ | EThompson | |
| □ | InstallTeam | |
| □ | Jason | |
| □ | Jose | |
| □ | Paul | |
| □ | TrainingGroup | Weekly Training Team |
| □ | athompson | |
| □ | scott | |
| □ | termOnlyUser | |

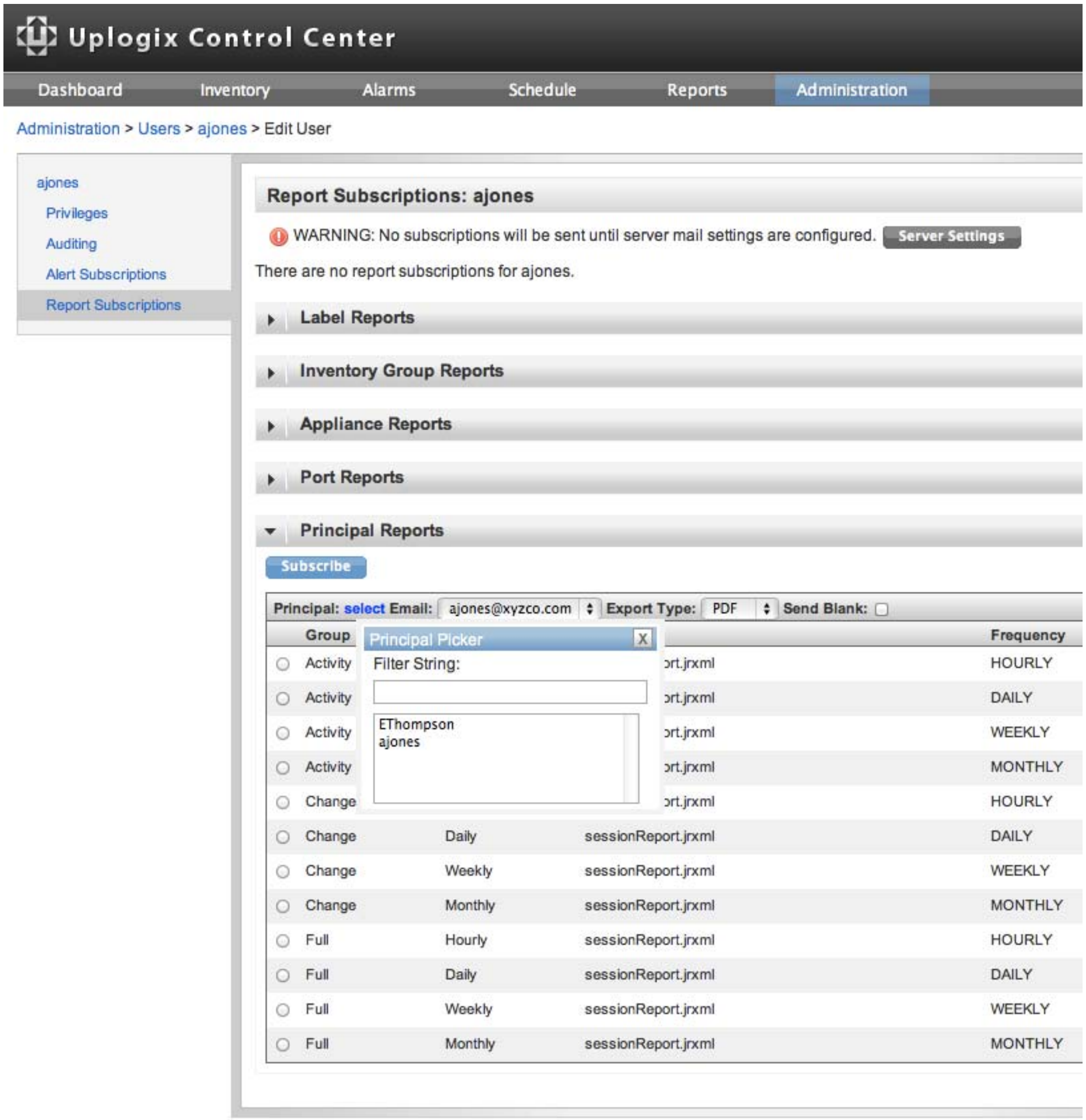
9 items found, displaying all items.

The `ajones` account has an email address, and the user `Ethompson` is now among `ajones'` auditees, so `ajones` will be able to subscribe to reports on `Ethompson`.

The next step is to subscribe to the desired reports. Click **Report Subscriptions** from the left menu to go to the Report Subscriptions page.

On the Report Subscriptions page, expand the **Principal Reports** section at the bottom of the Report Subscriptions page.

Select the Principal—the user to be audited. If your account is configured to audit many users, you may wish to enter a filter string to shorten the list of usernames.



Report Subscriptions: ajones

WARNING: No subscriptions will be sent until server mail settings are configured.

There are no report subscriptions for ajones.

Principal: select Email: ajones@xyzco.com Export Type: PDF Send Blank: □

Filter String:

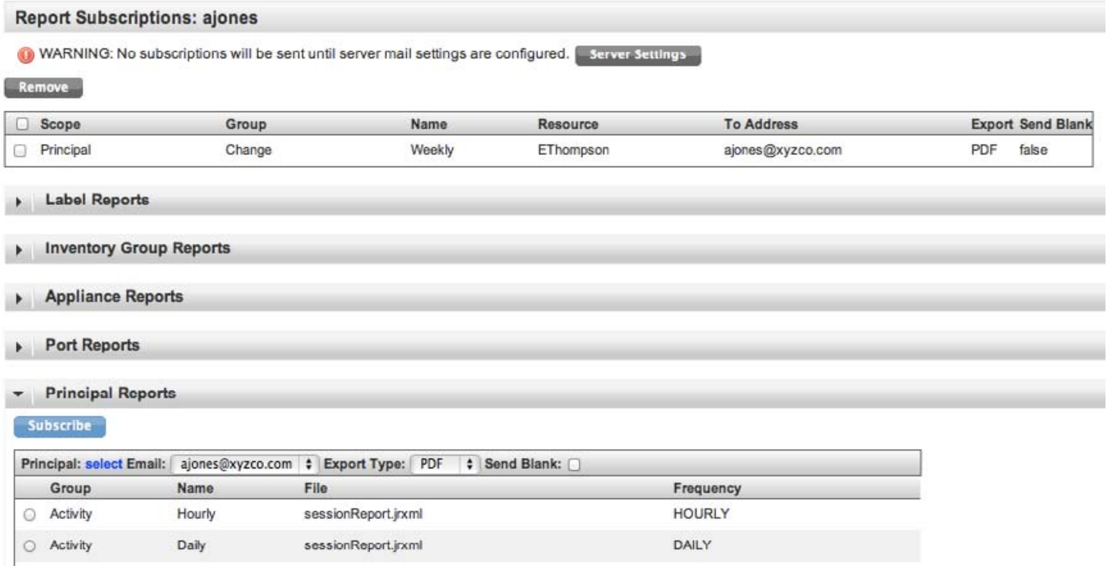
EThompson
ajones

| | Group | | | Frequency |
|---|---|---|---|---|
| ○ | Activity | | ort.jrxml | HOURLY |
| ○ | Activity | | ort.jrxml | DAILY |
| ○ | Activity | | ort.jrxml | WEEKLY |
| ○ | Activity | | ort.jrxml | MONTHLY |
| ○ | Change | | ort.jrxml | HOURLY |
| ○ | Change | Daily | sessionReport.jrxml | DAILY |
| ○ | Change | Weekly | sessionReport.jrxml | WEEKLY |
| ○ | Change | Monthly | sessionReport.jrxml | MONTHLY |
| ○ | Full | Hourly | sessionReport.jrxml | HOURLY |
| ○ | Full | Daily | sessionReport.jrxml | DAILY |
| ○ | Full | Weekly | sessionReport.jrxml | WEEKLY |
| ○ | Full | Monthly | sessionReport.jrxml | MONTHLY |

Select the auditor's email address if more than one is available, and choose the file type that will be emailed - .pdf, .html, or .csv. Then **Subscribe** to the desired report.

- Activity reports—include all page views.
- Change reports—include all actions that resulted in changes on the Control Center, any Local Manager under management, or any device connected to a managed Local Manager.
- Full reports—include all information from both activity and change reports.

Use the radio buttons next to the reports to select which reports to receive and click on the **Subscribe** button. The new subscription is listed at the top of the Report Subscriptions page, and in the Report Subscriptions area of the Edit User page.



Report Subscriptions: ajones

WARNING: No subscriptions will be sent until server mail settings are configured.

| □ | Scope | Group | Name | Resource | To Address | Export | Send Blank |
|---|---|---|---|---|---|---|---|
| □ | Principal | Change | Weekly | EThompson | ajones@xyzco.com | PDF | false |

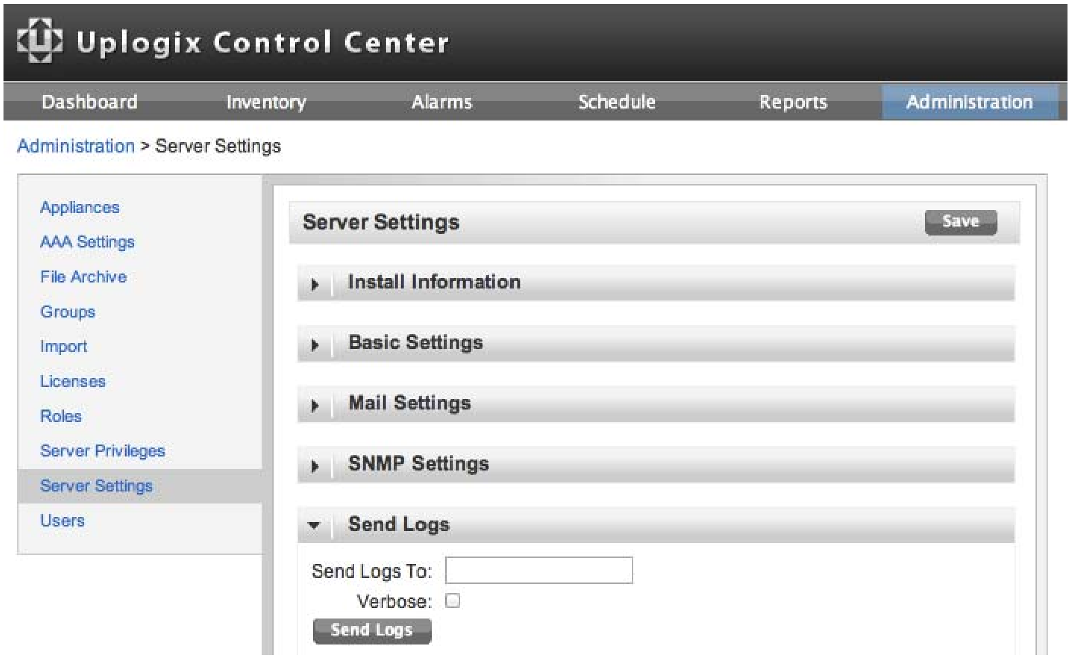
Principal: select Email: ajones@xyzco.com Export Type: PDF Send Blank: □

|   | Group | Name | File | Frequency |
|---|---|---|---|---|
| ○ | Activity | Hourly | sessionReport.jrxml | HOURLY |
| ○ | Activity | Daily | sessionReport.jrxml | DAILY |

## Sending logs to Technical Support

**Administration > Server Settings**

If you contact Uplogix Technical Support about an issue with the Control Center, the technical support staff may ask you to send the logs. The Send Logs section at the bottom of the Server Settings page provides a convenient way to do this.



Administration > Server Settings

Send Logs To:

Verbose: □

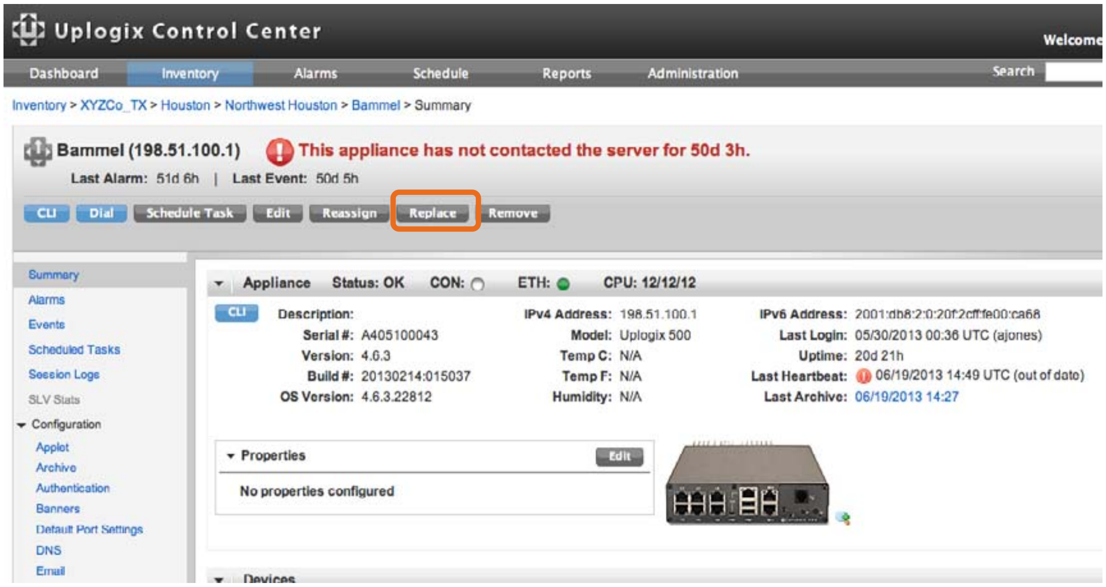
Follow the support technician's instructions to send the logs.

## Replacing a Local Manager

**Inventory > Local Manager Page**

If a Local Manager stops sending heartbeats, the Local Manager's icon in the inventory changes to gray after four consecutive failures. The default heartbeat interval is 30 seconds.

The detail page for an unresponsive system displays the Replace button.



Inventory > XYZCo_TX > Houston > Northwest Houston > Bammel > Summary

Bammel (198.51.100.1) This appliance has not contacted the server for 50d 3h.

Last Alarm: 51d 6h | Last Event: 50d 5h

Appliance Status: OK CON: ○ ETH: ● CPU: 12/12/12

Description:
Serial #: A405100043
Version: 4.6.3
Build #: 20130214:015037
OS Version: 4.6.3.22812

IPv4 Address: 198.51.100.1
Model: Uplogix 500
Temp C: N/A
Temp F: N/A
Humidity: N/A

IPv6 Address: 2001:db8:2:0:20f:2cff:fe00:ca68
Last Login: 05/30/2013 00:36 UTC (ajones)
Uptime: 20d 21h
Last Heartbeat: 06/19/2013 14:49 UTC (out of date)
Last Archive: 06/19/2013 14:27

No properties configured

Click **Replace** for a list of Local Managers that are available to replace the unresponsive Local Manager. To be listed, a Local Manager must be unassigned, running the same software version as the Control Center, and communicating properly.

Select a replacement. The unresponsive Local Manager is replaced in the inventory list by the Local Manager selected. The Control Center pushes the stored network device configuration from the replaced Local Manager to the replacement.

After the replacement Local Manager is updated, disconnect all devices from the replaced unit and connect them to the corresponding connectors on the replacement.

Local Managers must be replaced with an identical product. For example, an Uplogix 500 must be replaced with an Uplogix 500 for the replacement to work.

The software versions must also be the same. For example, replace 5.1.x with 5.1.x for replacement to work.

## Shutting down the Control Center

The Control Center can be shut down or restarted from the CLI using Linux commands.

**Caution:** Do not remove power from the Control Center while it is running. Failure to shut down properly may result in the loss of data.

Open a console or SSH session with your Control Center and become root. To restart the Control Center, use the `shutdown -r now` command. To shut down the Control Center, use the `shutdown -h now` command.

Using the `shutdown` command ensures that all services exit cleanly before the reboot / shutdown.

# Advanced Control Center Functionality

The Control Center offers several advanced features to help manage your deployment.

In this chapter:

- SOCKS Proxy Support—set up and configuration of a SOCKS proxy for device access
- Serial Port Forwarding —make the console port of the managed device available on a local workstation via reverse SSH tunnel
- SSH Port Forwarding—access to network services running on the dedicated or management IP addresses of a managed device
- Serial Port Mirroring —make the console port of the managed device available on a local workstation via a modem connection
- SMS Outband (PPP on)—contact remote Local Managers via SMS message to start PPP
- CLI Applet Failover to Managed Device— open SSH connections to Local Managers that pass through to the console port of a managed device via the CLI Applet
- CLI Applet SSH Key Authentication—open SSH connections with private key authentication to Local Managers and to managed devices via the CLI Applet

## SOCKS Proxy Support

The Control Center's CLI applet supports the use of a SOCKS Proxy server when accessing Uplogix devices. Setting up a SOCKS Proxy allows users to access devices through a proxy to bypass routing and firewall limitations and configure proxy servers for groups and/or individual devices.

A properly configured SOCKS Proxy server is required to use this feature. Contact Uplogix support if you would like to configure a SOCKS Proxy on the Control Center.

### Arguments

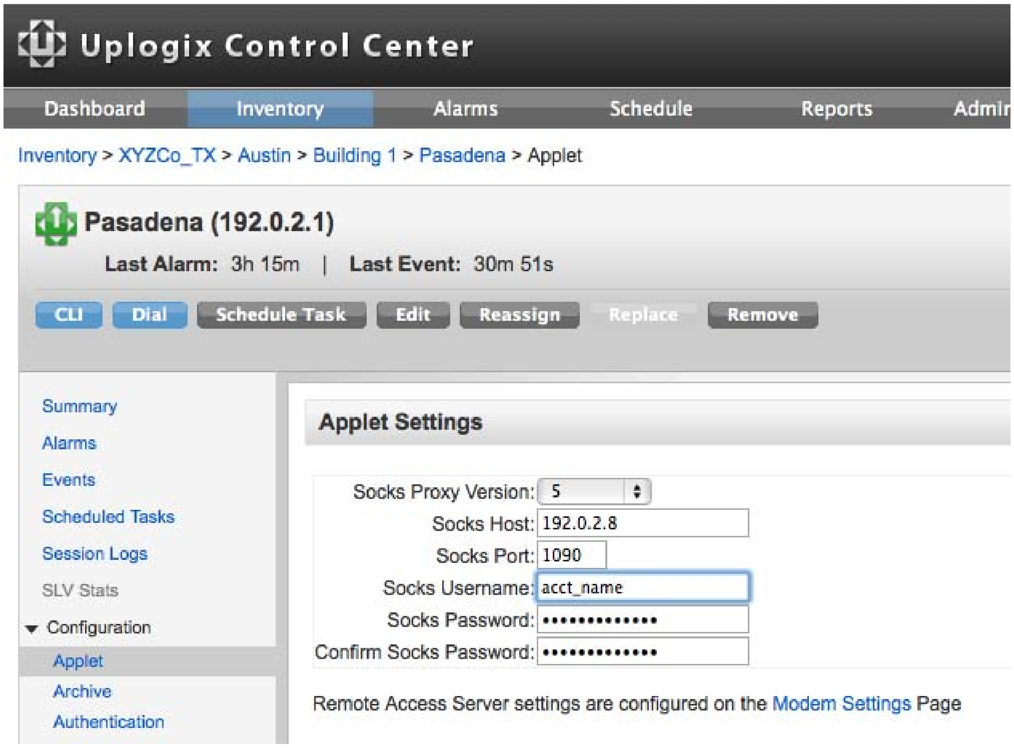
| | |
|---|---|
| Socks Proxy Version | Both Socks Proxy Version 4 and 5 are supported. |
| Socks Host | The IP address of the Socks Proxy Server. |
| Socks Port | The listening port of the Socks Proxy Server. Typical default port is 1080. |
| Socks Username | Username to authenticate with the proxy server, if required. |
| Socks Password | Password to authenticate with the proxy server, if required. |

## Usage

Proxy settings can be configured at the global, group, or individual device level. First, connect to the web interface of the Control Center and navigate to the Inventory page. Select an Uplogix device from the Inventory tree to bring up its detail page. On the left, expand the Configuration menu and select **Applet**.

In this example, the Control Center will be configured to use a socks proxy server with the following configuration:

```
Version:   5
IP Address:    172.30.151.109
Port: 1080
Username:  acct_name
Password:  password27
```



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > Applet

Pasadena (192.0.2.1)

Last Alarm: 3h 15m | Last Event: 30m 51s

Applet Settings

Socks Proxy Version: 5
Socks Host: 192.0.2.8
Socks Port: 1090
Socks Username: acct_name
Socks Password: •••••••••••••
Confirm Socks Password: •••••••••••••

Remote Access Server settings are configured on the Modem Settings Page

When the Socks Proxy Version is set to `disabled`, the configuration options will be grayed out. To begin configuring settings, change the Socks Proxy Version to either **4** or **5**.

- Version 4: Requires an IP address and a listening port. Since Version 4 does not support authentication, the password field is grayed out.
- Version 5: All configuration options are available with this version. Depending on the configuration of the proxy server, a username and password may be required.

Once you have configured necessary settings, click **Save**.

The Socks Proxy configuration will be transparent to the end user. To test your settings, select a previously inaccessible device from the inventory and launch the CLI applet. A connection to the device should succeed.

If the connection fails, verify that your settings are correct by examining the configuration of the proxy server or by testing with an SSH client such as Putty or SecureCRT.

# Serial Port Forwarding

Use the Serial Port Forwarding feature to make the console port of the managed device available on a local workstation via reverse SSH tunnel. In order to utilize this feature, a user must have the `terminal` privilege.

An SSH client with reverse tunnel capabilities is required to use this feature. Supported clients include PuTTY and the CLI Applet on the Control Center.

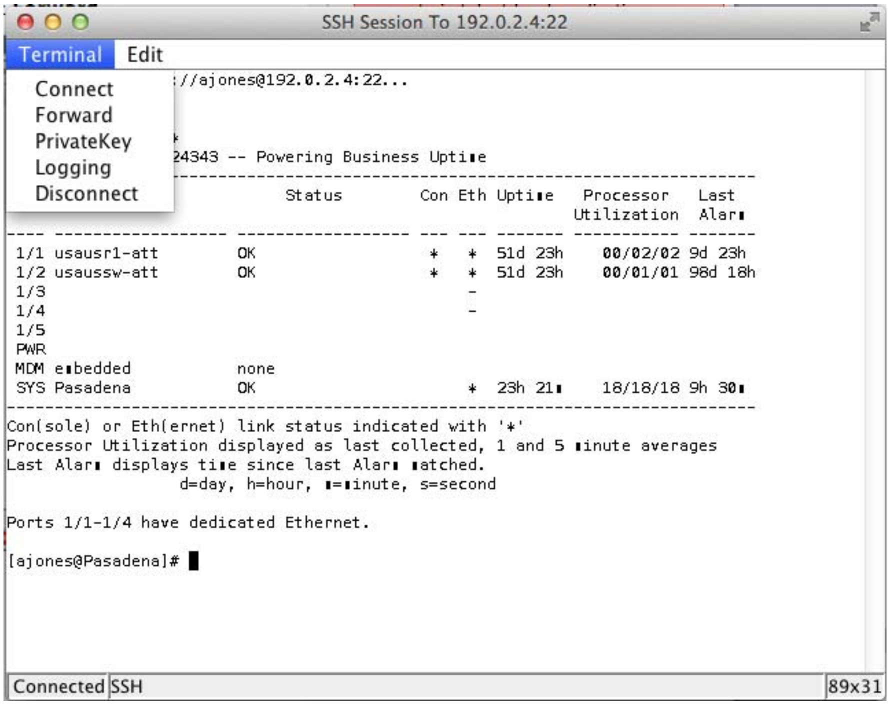
Prior to setting up serial port forwarding, initialize the Local Manager port with the appropriate device driver via the `config init` command. Refer to the appropriate device configuration guide for information.

## About Connections

- Only one TCP connection is allowed per forwarded port. Subsequent connections will fail until the first connection is exited.
- The TCP connection can be terminated by disabling the forward setting in the CLI Applet, or by closing the SSH client.
- Connections to forwarded ports are subject to the same idle timeouts as normal terminal sessions. The idle counter is reset if data is passed over the TCP connection.

## Usage

1. Start the CLI Applet by navigating to a device in the inventory tree and clicking on the **CLI** button. Once the applet loads, authenticate with the device and log in.
2. Click on **Terminal** in the CLI Applet menu bar and select **Forward**.



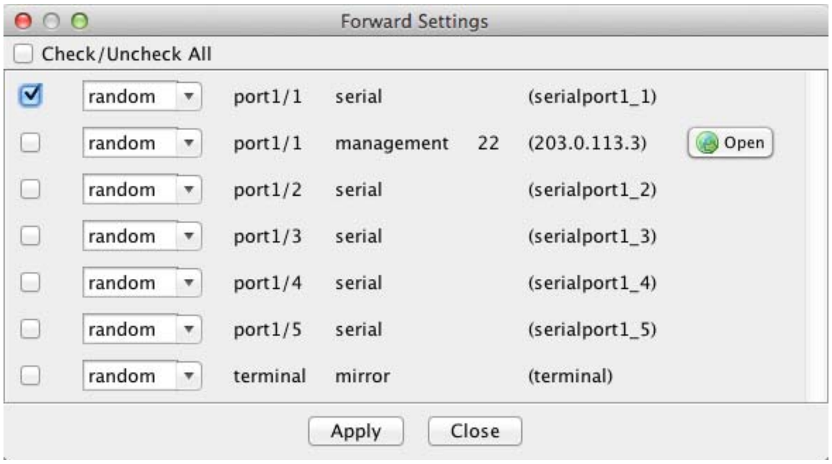
```
                 ://ajones@192.0.2.4:22...


                 *
                 24343 -- Powering Business Upti▮e
                 -------------------------------------------------------------
                             Status        Con Eth Upti▮e   Processor   Last
                                                           Utilization  Alar▮
---- ------------------ ------------------ --- --- ------- ----------- -------
 1/1 usausr1-att        OK                  *   *  51d 23h    00/02/02 9d 23h
 1/2 usaussw-att        OK                  *   *  51d 23h    00/01/01 98d 18h
 1/3                                            -
 1/4                                            -
 1/5
 PWR
 MDM e▮bedded           none
 SYS Pasadena           OK                      *  23h 21▮    18/18/18 9h 30▮
------------------------------------------------------------------------------
Con(sole) or Eth(ernet) link status indicated with '*'
Processor Utilization displayed as last collected, 1 and 5 ▮inute averages
Last Alar▮ displays ti▮e since last Alar▮ ▮atched.
                  d=day, h=hour, ▮=▮inute, s=second

Ports 1/1-1/4 have dedicated Ethernet.

[ajones@Pasadena]# █
```

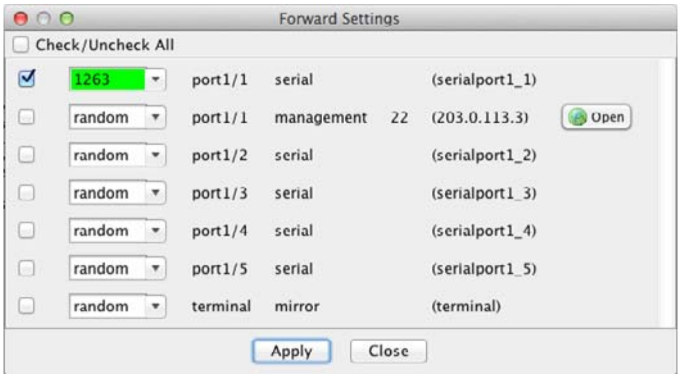
3. Mark the checkbox next to the port you wish to forward. By default, the applet will forward to a random local port. To specify a port, delete `random` and enter the desired port.



□ Check/Uncheck All

| | | | | | | |
|---|---|---|---|---|---|---|
| ☑ | random ▾ | port1/1 | serial | | (serialport1_1) | |
| □ | random ▾ | port1/1 | management | 22 | (203.0.113.3) | Open |
| □ | random ▾ | port1/2 | serial | | (serialport1_2) | |
| □ | random ▾ | port1/3 | serial | | (serialport1_3) | |
| □ | random ▾ | port1/4 | serial | | (serialport1_4) | |
| □ | random ▾ | port1/5 | serial | | (serialport1_5) | |
| □ | random ▾ | terminal | mirror | | (terminal) | |

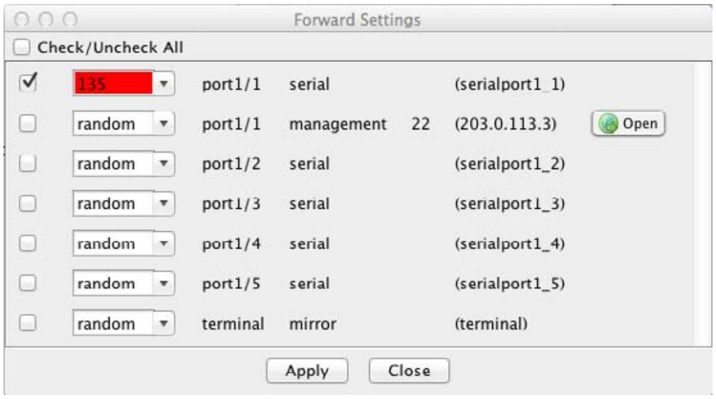
4. Click **Apply** to save your settings. If a random port was assigned, it will be displayed and highlighted in green.



□ Check/Uncheck All

| | | | | | | |
|---|---|---|---|---|---|---|
| ☑ | 1263 ▾ | port1/1 | serial | | (serialport1_1) | |
| □ | random ▾ | port1/1 | management | 22 | (203.0.113.3) | Open |
| □ | random ▾ | port1/2 | serial | | (serialport1_2) | |
| □ | random ▾ | port1/3 | serial | | (serialport1_3) | |
| □ | random ▾ | port1/4 | serial | | (serialport1_4) | |
| □ | random ▾ | port1/5 | serial | | (serialport1_5) | |
| □ | random ▾ | terminal | mirror | | (terminal) | |

5. If you specified an invalid port (in use or conflicting), it will be highlighted in red.

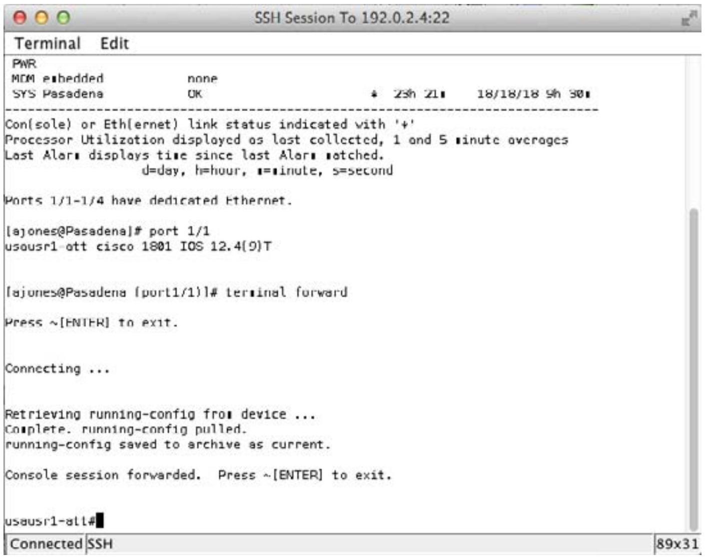


□ Check/Uncheck All

| | | | | | | |
|---|---|---|---|---|---|---|
| ☑ | 135 ▾ | port1/1 | serial | | (serialport1_1) | |
| □ | random ▾ | port1/1 | management | 22 | (203.0.113.3) | Open |
| □ | random ▾ | port1/2 | serial | | (serialport1_2) | |
| □ | random ▾ | port1/3 | serial | | (serialport1_3) | |
| □ | random ▾ | port1/4 | serial | | (serialport1_4) | |
| □ | random ▾ | port1/5 | serial | | (serialport1_5) | |
| □ | random ▾ | terminal | mirror | | (terminal) | |

6. Click **Close** to return to your SSH session.

7. Navigate to the desired port and use the `terminal forward` command to start forwarding.



```
PWR
MDM embedded          none
SYS Pasadena          OK                        +  23h 21m    18/18/18 9h 30m
-------------------------------------------------------------------------------
Con(sole) or Eth(ernet) link status indicated with '+'
Processor Utilization displayed as last collected, 1 and 5 minute averages
Last Alarm displays time since last Alarm matched.
                d=day, h=hour, m=minute, s=second

Ports 1/1-1/4 have dedicated Ethernet.

[ajones@Pasadena]# port 1/1
usausr1-att cisco 1801 IOS 12.4(9)T


[ajones@Pasadena (port1/1)]# terminal forward

Press ~[ENTER] to exit.


Connecting ...


Retrieving running-config from device ...
Complete. running-config pulled.
running-config saved to archive as current.

Console session forwarded.  Press ~[ENTER] to exit.


usausr1-att#
```

Once the message `Console session forwarded` displays, connect to the forwarded session on your local machine. Navigate to 127.0.0.1 (localhost) on the port specified in step 4 or 5 using your workstation application such as a browser or element manager.

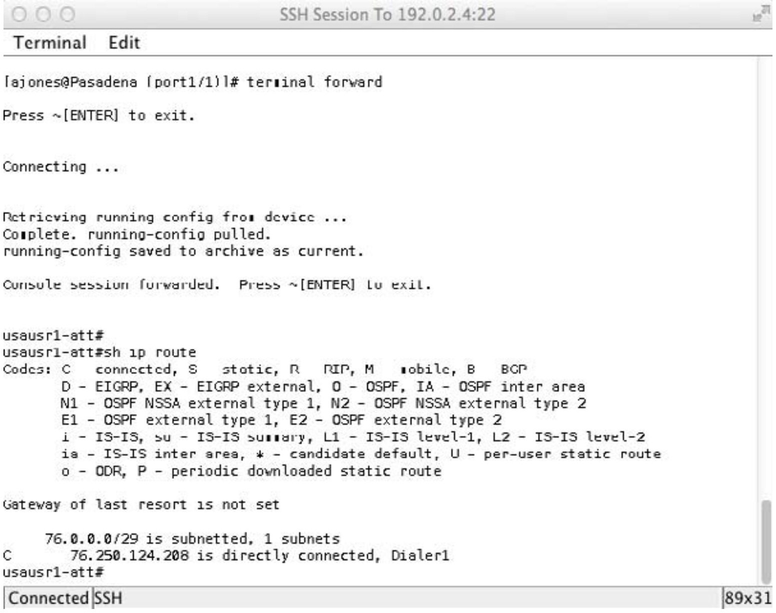
```
upx-mkt-03:~ root# telnet 127.0.0.1 1263
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.

usausr1-att#sh ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is not set

     76.0.0.0/29 is subnetted, 1 subnets
C       76.250.124.208 is directly connected, Dialer1
usausr1-att#
```

8. Anything typed to the forwarded port will be displayed in the original terminal session.



```
[ajones@Pasadena [port1/1]]# terminal forward

Press ~[ENTER] to exit.


Connecting ...


Retrieving running config from device ...
Complete. running-config pulled.
running-config saved to archive as current.

Console session forwarded.  Press ~[ENTER] to exit.


usausr1-att#
usausr1-att#sh ip route
Codes: C   connected, S   static, R   RIP, M   mobile, B   BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is not set

     76.0.0.0/29 is subnetted, 1 subnets
C       76.250.124.208 is directly connected, Dialer1
usausr1-att#
```

See the *Local Manager Guide* for information on how to forward a serial port using PuTTY.

## SSH Port Forwarding

SSH port forwarding enables access to network services running on the dedicated or management IP addresses of a managed device. Multiple users on multiple workstations can use SSH Port Forwarding concurrently.

Certain privileges are required to edit or view a port's forward configuration:

- `show protocols forward`—Views the forwarding settings.
- `config protocols forward`—Configures the forwarding settings.
- `forward`—Allows the user to open an SSH session with a tunnel to the forwarded port.

The Uplogix device will attempt to forward incoming TCP traffic regardless of whether the destination is configured properly or not. Ensure the managed device is configured to listen on the port specified.

When using the CLI Applet on the Control Center, a Java JRE must be installed on the user's workstation.

### Usage

First, connect to the web interface of the Control Center and navigate to the Inventory page. Select an Uplogix device from the Inventory tree to bring up its detail page. Launch the Control Center applet by clicking on the **CLI** button.

## Configure IP Addresses

The managed device's management or dedicated IP address must be configured on the Uplogix device. This can be configured using `config init` or `config info`.

```
[admin@xyzcoAus (port1/1)]# config init
--- Enter New Values ---
description: []:
<output removed>
management IP: []: 198.0.2.100
Configure dedicated ethernet port? (y/n) [y]:
Use DHCP? (y/n) [n]:
dedicated device IP []: 169.254.100.2
dedicated port IP []: 169.254.110.3
dedicated netmask: []: 255.255.255.252
speed/duplex: [auto]:
<output removed>
Do you want to commit these changes? (y/n): y
```

## Configure Port Forwarding

Use the `config protocols forward` command to open the port forwarding configuration editor.

```
[admin@xyzcoAus (port1/1)]# config protocols forward
[forward]#
```

Once in the editor, you can use the `?` command to view a list of possible options.

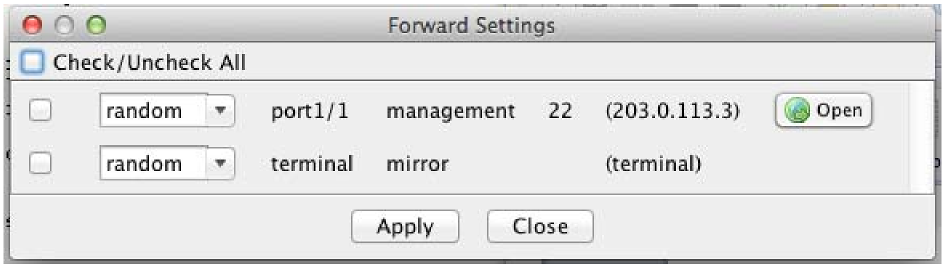
```
 [forward]# ?
Forward options are:
[no] management {port}
[no] dedicated {port}
[no] events
show
exit
```

| | |
|---|---|
| [no] management {port} | Enables forwarding to the management IP address and the port specified. The **no** prefix will remove the forward.<br>Example: To enable traffic forwarding to port 80 on the managed device's management IP address, use `management 80`. |
| [no] dedicated {port} | Enables forwarding to the dedicated IP address and the port specified. The **no** prefix will remove the forward.<br>Example: To enable traffic forwarding to port 80 on the managed device's dedicated IP address, use `dedicated 80`. |
| [no] events | Turns on event logging for traffic forwarding. The **no** prefix will turn off event logging. |
| Show | Displays the current configuration. |
| Exit | Exits the configuration editor. |

Note that the port specified should match the listening port on the managed device. If the managed device is running an SSH server on its management IP address, forwarding should be configured as `management 22`.

## Creating a Tunnel

To use the CLI Applet on the Control Center, navigate to a device in the Inventory tree and click on the **`CLI`** button. Once the applet has loaded, click on `Terminal` in the menu bar and select `Forward`.


Forward Settings

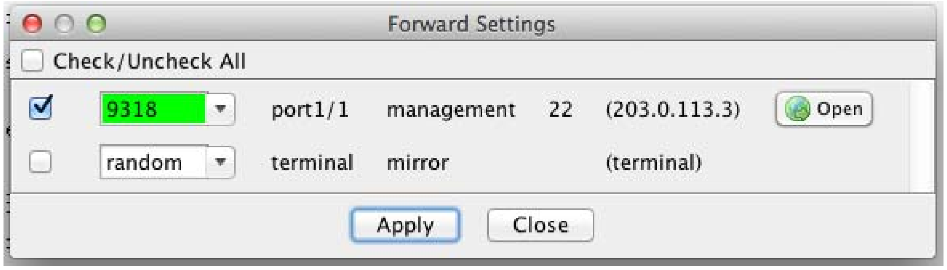
□ Check/Uncheck All

□ random port1/1 management 22 (203.0.113.3)

□ random terminal mirror (terminal)

In this example, the Uplogix device has already been configured to forward traffic to port 22 at the management IP address for the device on port 1/2. The screen above allows you to select which tunnels to create. On a device with multiple forwards configured, the above list would be longer.

To create a tunnel, check the box next to the port forwards you wish to enable. Then, select a local port to use for forwarding. If random is selected, the applet will select a random port on the workstation. Click **Apply** to save your settings.

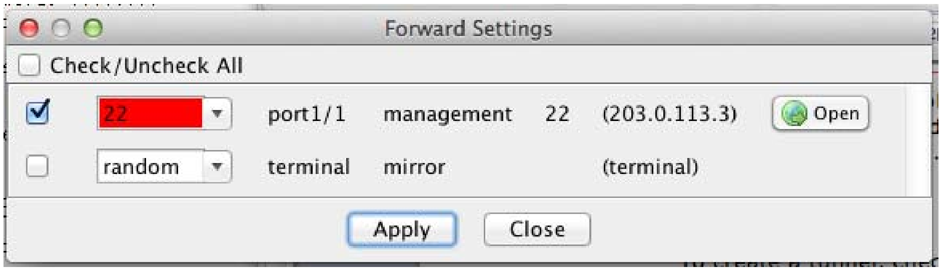

Forward Settings

□ Check/Uncheck All

☑ 9318 port1/1 management 22 (203.0.113.3)

□ random terminal mirror (terminal)

If the forward was successful, the drop down box will turn green. If a random port was requested, the port number will be displayed in the green box.


Forward Settings

□ Check/Uncheck All

☑ 22 port1/1 management 22 (203.0.113.3)

□ random terminal mirror (terminal)

If the drop-down menu turns red, this indicates the local port was unavailable and the tunnel was not created. Choose a different local port that is not currently in use.

### Notes

- Access to forwarded ports is secured by mapping the requested hostname or IP address to a managed device on the device. If forwarding is enabled for two ports that have the same management or dedicated IP addresses, it may be possible for a user to access the forwarded port of a device that they do not have explicit permission for.
- Any tunnels created with an SSH session will be destroyed if the session times out or is exited. To regain access to the tunnel, initiate another SSH session.
- See the Local Manager Guide for information on how to SSH port forward using stand-alone SSH clients such as PuTTY.

## Serial Port Mirroring

Use the Serial Port Mirroring feature to expose the console port of the managed device available on a local workstation TCP port. This is often used to simulate direct serial port connectivity from workstation to device as if the device was serially directly connected. A software TCP-to-COM port redirector may be necessary to complete the connection to the application if it requires COM port addressing. In order to utilize this feature, a user must have the `terminal` privilege and utilize the CLI Applet on the Control Center.

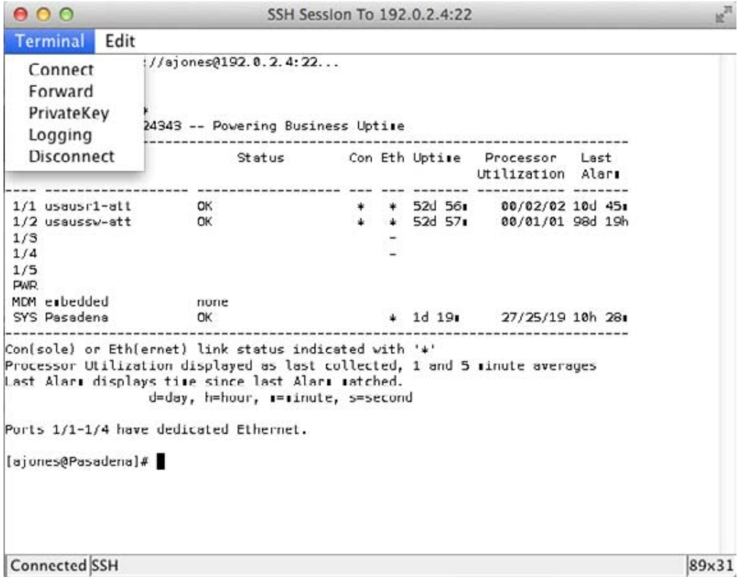
Prior to setting up serial port mirroring, initialize the Local Manager port with the appropriate device driver via the `config init` command. Refer to the appropriate device configuration guide for information.

### About Connections

- Only one exposed connection is made per mirrored port. Subsequent connections will fail until the first connection is exited.
- The mirror can be terminated by selecting Terminal, Forward and Mirror from the applet menu and un-checking the forward checkbox.
- Accessing a mirrored port via local application utilizes authentication and authorization previously negotiated.
- Connections to mirrored ports are subject to the same idle timeouts as normal terminal sessions. The idle counter is reset if data is passed over the terminal connection.

### Usage

1. Start the CLI Applet by navigating to a device in the inventory tree and clicking on the **CLI** or **Dial** button. Once the applet loads, authenticate with the device and log in.
2. Click on **Terminal** in the CLI Applet menu bar and select **Forward**.



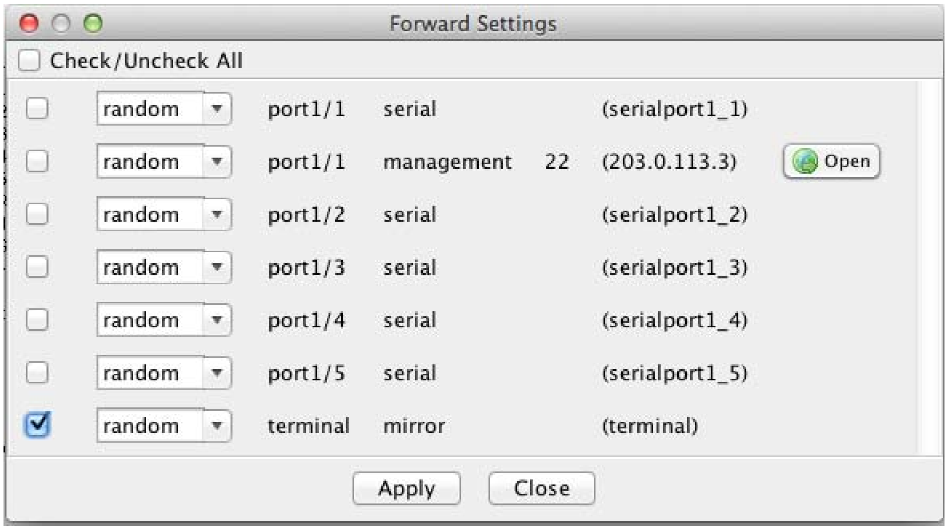
```
 ://ajones@192.0.2.4:22...

 *
 24343 -- Powering Business Upti▮e
 -----------------------------------------------------------------
                  Status          Con Eth Upti▮e    Processor   Last
                                                    Utilization Alar▮
---- ------------------ ------------------ --- --- ------- ----------- -------
 1/1 usausr1-att        OK                 *   *   52d 56▮    00/02/02 10d 45▮
 1/2 usaussw-att        OK                 *   *   52d 57▮    00/01/01 98d 19h
 1/3                                           -
 1/4                                           -
 1/5
 PWR
 MDM e▮bedded           none
 SYS Pasadena           OK                     *   1d 19▮     27/25/19 10h 28▮
------------------------------------------------------------------------------
Con(sole) or Eth(ernet) link status indicated with '*'
Processor Utilization displayed as last collected, 1 and 5 ▮inute averages
Last Alar▮ displays ti▮e since last Alar▮ ▮atched.
                  d=day, h=hour, ▮=▮inute, s=second

Ports 1/1-1/4 have dedicated Ethernet.

[ajones@Pasadena]# █
```

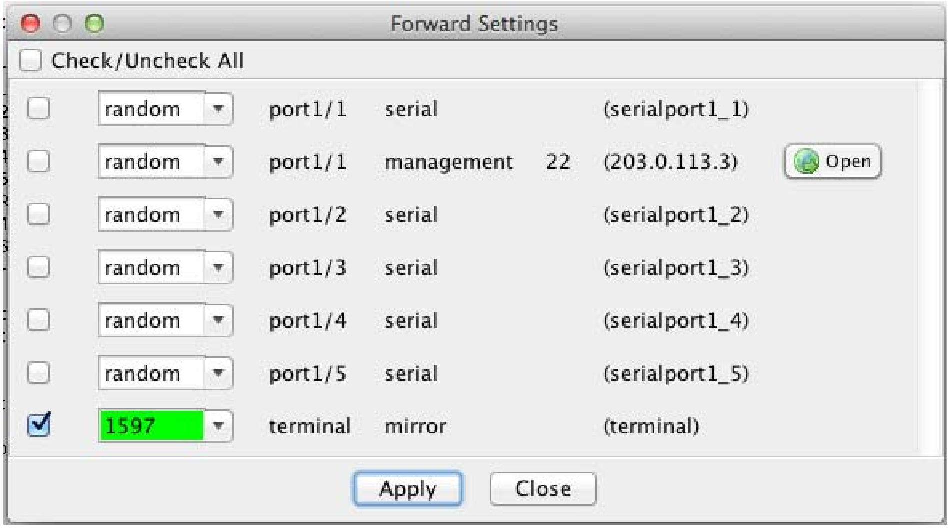
3. Mark the checkbox next to mirror. By default, the applet will forward to a random local port. To specify a port, delete `random` and enter the desired port.



□ Check/Uncheck All

| | | | | | | |
|---|---|---|---|---|---|---|
| □ | random ▾ | port1/1 | serial | | (serialport1_1) | |
| □ | random ▾ | port1/1 | management | 22 | (203.0.113.3) | Open |
| □ | random ▾ | port1/2 | serial | | (serialport1_2) | |
| □ | random ▾ | port1/3 | serial | | (serialport1_3) | |
| □ | random ▾ | port1/4 | serial | | (serialport1_4) | |
| □ | random ▾ | port1/5 | serial | | (serialport1_5) | |
| ☑ | random ▾ | terminal | mirror | | (terminal) | |

4. Click **Apply** to save your settings. If a random port was assigned, it will be displayed and highlighted in green.



Forward Settings

□ Check/Uncheck All

| | | | | | | |
|---|---|---|---|---|---|---|
| □ | random | port1/1 | serial | | (serialport1_1) | |
| □ | random | port1/1 | management | 22 | (203.0.113.3) | Open |
| □ | random | port1/2 | serial | | (serialport1_2) | |
| □ | random | port1/3 | serial | | (serialport1_3) | |
| □ | random | port1/4 | serial | | (serialport1_4) | |
| □ | random | port1/5 | serial | | (serialport1_5) | |
| ☑ | 1597 | terminal | mirror | | (terminal) | |

5. Click **Close** to return to your applet session.
6. Anything typed to the mirrored port will be displayed in the original terminal session.

## SMS Outband (PPP on)

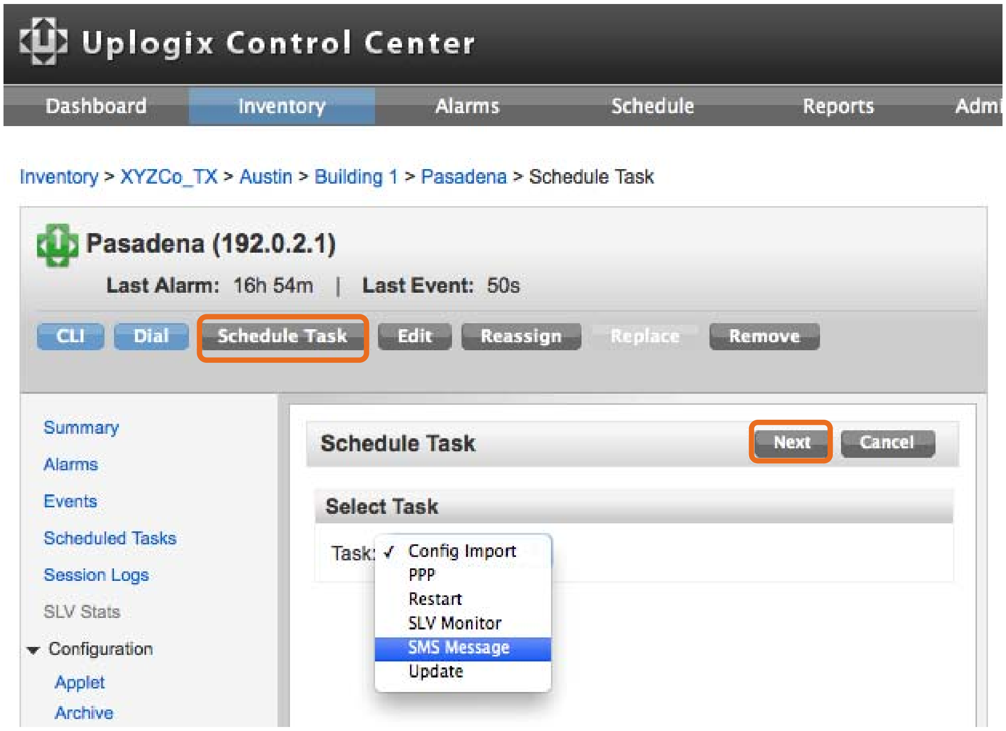
In environments where Local Managers contact the Control Center as needed via wireless modem, contact can be initiated from the Control Center by sending an SMS message instructing a Local Manager to phone home in order to connect to the network out-of-band.

Requirements for using this capability are:

- The Local Manager uses a wireless modem (GPRS/CDMA/Iridium/Inmarsat) modem that supports SMS commands.
- The Local Manager has been configured with a phone number and SMS domain name that the Control Center can use to construct a valid SMS email address. These are locally configured with the `config answer` command.
- An SMS modem monitor with automation (i.e., a rule/ruleset) has been configured for the modem to monitor for SMS messages.  The canned smsPppOn rule can be used in conjunction with this monitor.

To initiate contact:

1. Select the Local Manager from the Inventory and expand the page to show the Local Manager detail.
2. Click **Schedule Task** and from the list of tasks that may be scheduled, select **SMS Message** and click **Next**.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > Schedule Task

Pasadena (192.0.2.1)

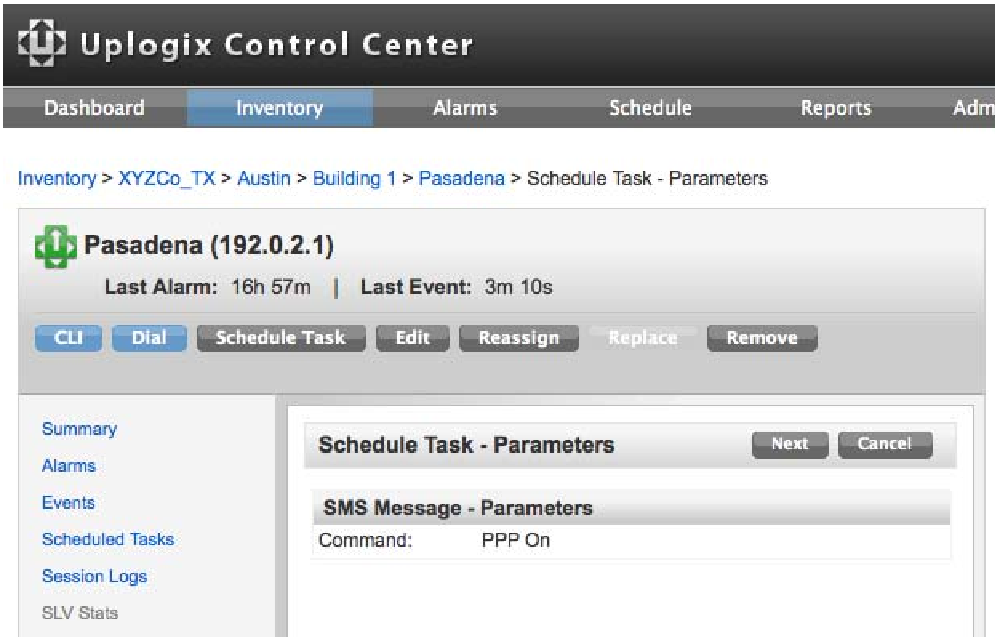
Last Alarm: 16h 54m | Last Event: 50s

Schedule Task

Select Task

Task: SMS Message

3. The SMS Message – Parameters page opens. Click **Next** and the **ppp on** command is sent immediately by SMS message. It may take a few minutes before the Local Manager receives the SMS message and activates PPP to phone home.



Inventory > XYZCo_TX > Austin > Building 1 > Pasadena > Schedule Task - Parameters

Pasadena (192.0.2.1)

Last Alarm: 16h 57m | Last Event: 3m 10s

Schedule Task - Parameters

SMS Message - Parameters

Command: PPP On

## CLI Applet Failover to Managed Device

The Control Center provides users with the ability to open SSH connections to Local Managers that pass through to the console port of a managed device via the CLI Applet. Under normal circumstances, the CLI Applet establishes an SSH connection to the Local Manager. In the unusual event that the applet is unable to establish an SSH connection to the Local Manager, the CLI Applet Failover feature allows configuration of the CLI Applet so that it fails over to establishing an SSH connection directly to the managed device.

Many of the valuable Uplogix features such as session logs, events, and configuration rollback become unavailable when the CLI Applet fails over to connecting directly to the managed device, as the Local Manager is out of the connection loop in this scenario.

### Device Properties

This feature is activated by adding one or both of the following device properties to the Local Manager port for the managed device.

| | |
|---|---|
| _applet_failover_ssh_fingerprint | Defines the SSH fingerprint for the managed device.<br>The CLI applet will only establish a failover SSH connection to the managed device if the fingerprint it receives from the managed device matches the fingerprint value stored in this device property.<br>This property can be configured through the Local Manager CLI and via the Control Center. |
| _applet_failover_ssh_ip | Defines the IP address that the CLI applet should attempt to establish an SSH session to in the case where the applet fails to connect to the Local Manager.<br>This property is only required if a management IP address is **not** defined for the managed device within the Local Manager or Control Center.<br>If a management IP address exists for the managed device and this property is not defined, then the CLI applet will attempt the failover SSH connection to the defined management IP address.<br>If this property IS specified/defined, then the CLI applet failover feature will use the IP address contained in this property rather than the management IP address.<br>This property can be configured through the Local Manager CLI and via the Control Center. |

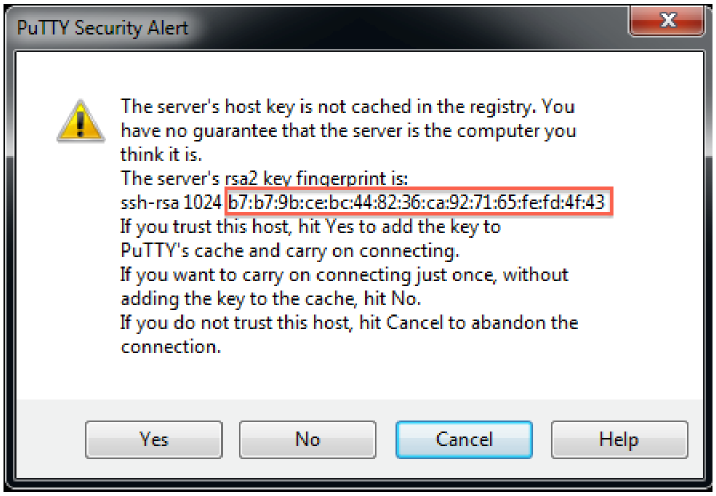
The following example walks through the process of configuring CLI Applet Failover to a Cisco 3925 router connected to port 1/2 of the Local Manager.

## Determine the SSH Fingerprint for the Managed Device

Part of enabling CLI applet failover to the managed device involves configuring the Local Manager with the SSH fingerprint of the managed device. Initiate an SSH session to the managed device via a terminal session or application such as PuTTY. The managed device fingerprint will display with a question asking whether to continue connecting. This assumes the PC/workstation does not have the managed device's RSA key in its known host file. If the fingerprint is not presented with a question asking whether to continue, then edit the SSH known host file on your PC/workstation to remove the entry for the managed device. Here is an example using a Linux, Unix or Mac terminal session:

```
/Users/admin > ssh admin@192.0.2.100
The authenticity of host '192.0.2.100 (192.0.2.100)' can't be established.
RSA key fingerprint is b7:b7:9b:ce:bc:44:82:36:ca:92:71:65:fe:fd:4f:43.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.0.2.100' (RSA) to the list of known hosts.
```

An example of the fingerprint in a Putty popup window is shown below:



The server's host key is not cached in the registry. You have no guarantee that the server is the computer you think it is.
The server's rsa2 key fingerprint is:
ssh-rsa 1024 b7:b7:9b:ce:bc:44:82:36:ca:92:71:65:fe:fd:4f:43
If you trust this host, hit Yes to add the key to PuTTY's cache and carry on connecting.
If you want to carry on connecting just once, without adding the key to the cache, hit No.
If you do not trust this host, hit Cancel to abandon the connection.

Copy the SSH fingerprint. It is a required device property that will be set up in the next step.

## Configure Device Properties via the Local Manager CLI

Log into the Local Manager and navigate to the port that is to be configured for CLI applet failover and enter the device property editor by issuing the following commands:

```
[admin@A400100052]# port 1/2
LRT-3925 cisco CISCO3925-CHASSIS IOS 15.1(4)M
         3925
[admin@A400100052 (port1/2)]# config properties
[config properties]#
```

Now configure the `_applet_failover_ssh_fingerprint` device property for the managed device SSH fingerprint (determined in the previous step) with the following command (where there is a space between the property and the fingerprint value):

```
[config properties]# _applet_failover_ssh_fingerprint
b7:b7:9b:ce:bc:44:82:36:ca:92:71:65:fe:fd:4f:43
[config properties]# show
_applet_failover_ssh_fingerprint: b7:b7:9b:ce:bc:44:82:36:ca:92:71:65:fe:fd:4f:43
[config properties]#
```

If there is no management IP address for the managed device configured in the Local Manager, or if the failover IP address that should be used is different from the configured management IP address, then the `_applet_failover_ssh_ip` device property should be configured to specify the failover IP address for the managed device. The Uplogix `show info` CLI command can be used to determine the management IP address for a given device. The following example shows the managed device to have a management IP address of `192.0.2.100`:

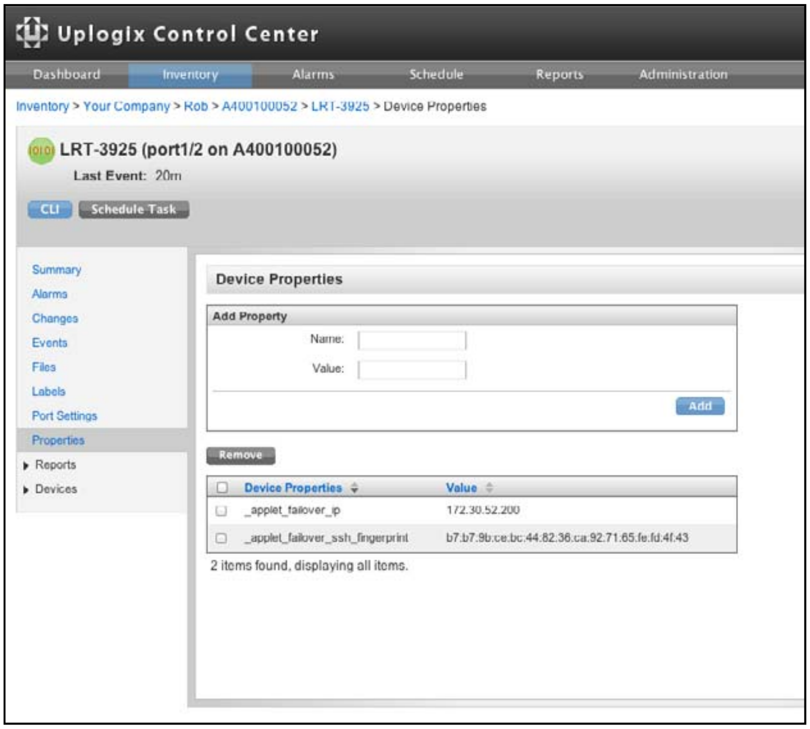
```
[admin@A400100052 (port1/2)]# show info
Hostname: LRT-3925
Description: 3925
Make: cisco
Model: CISCO3925-CHASSIS
OS: IOS
OS Version: 15.1(4)M
Management IP: 192.0.2.100
Current CPU Utilization: 0%
CPU Utilization (1 minute average): 1%
CPU Utilization (5 minute average): 1%
Total Memory: 762273884 bytes
Used Memory: 52811412 bytes
Free Memory: 709462472 bytes
```

To demonstrate how to set this device property, suppose that the CLI applet should failover to IP address `192.0.2.200` if a SSH session cannot be established to the Local Manager. Issue the following commands to enter the device property configuration editor on the managed device port and set the applet failover IP address:

```
[admin@A400100052 (port1/2)]# config properties
[config properties]# _applet_failover_ssh_ip 192.0.2.200
[config properties]# show
_applet_failover_ssh_ip: 192.0.2.200
_applet_failover_ssh_fingerprint: b7:b7:9b:ce:bc:44:82:36:ca:92:71:65:fe:fd:4f:43
[config properties]# exit

[admin@A400100052 (port1/2)]#
```

Alternatively, device properties can be set via the Control Center. Log into the Control Center, navigate to the Local Manager in the Inventory, click on the port for the managed device in the Device section of the Local Manager summary page, and click the Properties link in the left navigation bar. The following page appears so device properties can be added or deleted:



LRT-3925 (port1/2 on A400100052)

Last Event: 20m

Device Properties

Add Property

Name:

Value:

| □ | Device Properties | Value |
|---|---|---|
| □ | _applet_failover_ip | 172.30.52.200 |
| □ | _applet_failover_ssh_fingerprint | b7:b7:9b:ce:bc:44:82:36:ca:92:71:65:fe:fd:4f:43 |

2 items found, displaying all items.

### Usage

Once device properties are configured for a managed device as specified above, the CLI applet failover feature is configured and active. To use the CLI applet to access the console port of a managed device, connect to the web interface of the Control Center and navigate to the Inventory page. Select an Uplogix device from the Inventory tree to bring up its detail page. Launch the Control Center applet by clicking on the **CLI** button. Should the CLI applet fail to establish an SSH session to the Local Manager, the applet will then attempt to establish an SSH session directly to the managed device.

## CLI Applet SSH Key Authentication

The Control Center provides the capability to open SSH connections to Local Managers and managed devices via the CLI Applet using SSH keys in lieu of prompting for a username and password.

> Providing public keys to authenticate overrides TACACS/RADIUS authentication for that user.

### Arguments

| | |
|---|---|
| Authorized Keys | The SSH public key stored in the user profile in the Control Center. This key is synchronized to Local Managers with user information. |
| SSH Private Key File | The path to the SSH private key file on the user's workstation. This path is stored in a cookie in the user's browser and is set via the CLI Applet Terminal->PrivateKey function. |

This example walks through the process of configuring CLI applet SSH key authentication for user Ajones.

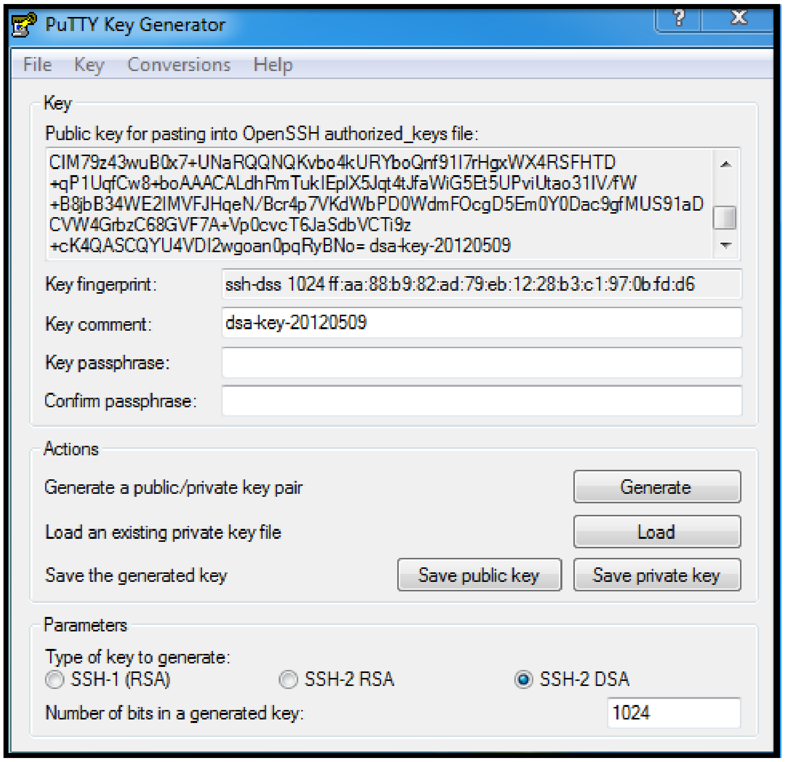
## Generate SSH Key Pair on Client Workstation (If one has not been previously created)

If the client workstation (i.e., the workstation that will launch the CLI applet to connect to the Local Manager or managed devices) is running Linux, Unix, or Mac OSX (or is running Windows with a Linux-like environment application like Cygwin), issue the following command in a terminal window to generate the key pair: `ssh-keygen –t rsa`.

```
/Users/admin > ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/Users/ajones/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /Users/ajones/.ssh/id_rsa.
Your public key has been saved in /Users/ajones/.ssh/id_rsa.pub.
The key fingerprint is:
53:6d:4d:bd:5e:45:15:e1:16:45:ad:67:b9:1b:ed:d9 ajones
```

If the Local Manager is running in FIPS mode, then a “rsa” key must be generated with at least 2048 bits – here is the command to generate this key pair: `ssh-keygen –t rsa –b 2048`.

If the client workstation is running a Windows operating system, the free puTTYgen tool can be downloaded and used to generate SSH key pairs. An example of this puTTYgen tool is shown below:



Public key for pasting into OpenSSH authorized_keys file:

```
CIM79z43wuB0x7+UNaRQQNQKvbo4kURYboQnf91I7rHgxWX4RSFHTD
+qP1UqfCw8+boAAACALdhRmTukIEplX5Jqt4tJfaWiG5Et5UPviUtao31IV/fW
+B8jbB34WE2IMVFJHqeN/Bcr4p7VKdWbPD0WdmFOcgD5Em0Y0Dac9gfMUS91aD
CVW4GrbzC68GVF7A+Vp0cvcT6JaSdbVCTi9z
+cK4QASCQYU4VDI2wgoan0pqRyBNo= dsa-key-20120509
```

Key fingerprint: ssh-dss 1024 ff:aa:88:b9:82:ad:79:eb:12:28:b3:c1:97:0b:fd:d6

Key comment: dsa-key-20120509

Key passphrase:

Confirm passphrase:

Type of key to generate:
○ SSH-1 (RSA) ○ SSH-2 RSA ● SSH-2 DSA

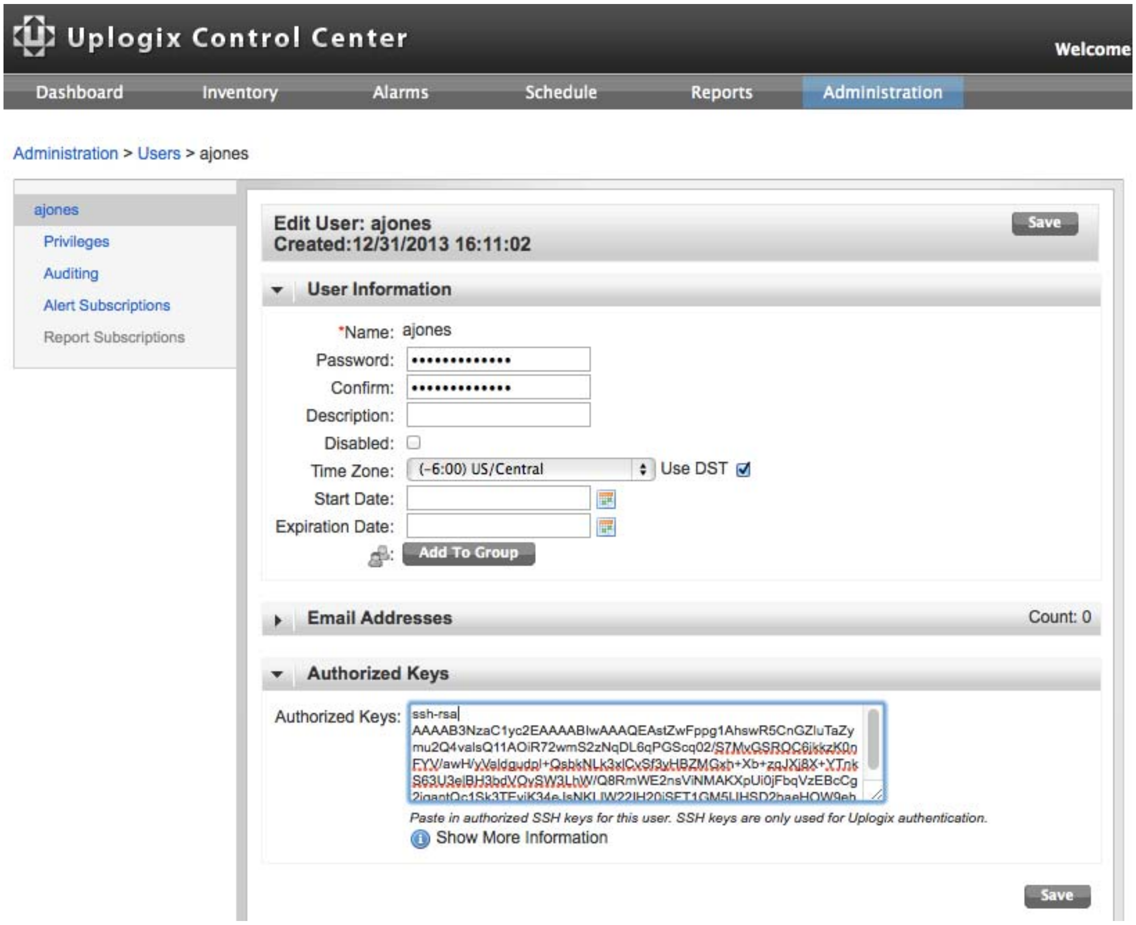
Number of bits in a generated key: 1024

After installing and running the puTTYgen tool, perform the following:

1. In the Parameters section, choose **SSH-2 DSA**, leave the default number of bits set to **1024** and click the **Generate** button for the standard, non-FIPS Uplogix Local Management solution. In the case where the Control Center is running in FIPS mode, choose **SSH-2 RSA**, set the number of bits in the generated key to **2048** and then click **Generate**.
2. Move the mouse in the small screen as instructed by the tool during key generation in order to add randomness to the key pair being generated.
3. Enter a key comment to identify the key pair. This is useful when using several SSH key pairs.
4. Do not enter a **Key passphrase** – leave it blank.
5. Click **Save private key** to save your private key. Give the key a filename and confirm that it should have a blank passphrase. Also, note the filename and path, as the location for this private key will be configured in a subsequent step.
6. Click **Save public key** to save the public key and give it a filename.

## Add Public SSH key to User in Control Center

The contents of the SSH public key should be copied and provided to a Control Center admin if the user does not have privileges to edit their user profile. Next, the user or Control Center admin should login to the web interface, navigate to the Administration-Users page and then click on the user to be provisioned with the SSH public key. In the example below, the SSH public key for user ajones is pasted into the Authorized Keys text box. Be sure to click **Save** after pasting the SSH public key.



**Edit User: ajones**
**Created:12/31/2013 16:11:02**

*Name: ajones
Password: •••••••••••••
Confirm: •••••••••••••
Description:
Disabled: □
Time Zone: (-6:00) US/Central   Use DST ☑
Start Date:
Expiration Date:

Email Addresses   Count: 0

Authorized Keys:

```
ssh-rsa
AAAAB3NzaC1yc2EAAAABIwAAAQEAstZwFppg1AhswR5CnGZluTaZy
mu2Q4valsQ11AOiR72wmS2zNqDL6qPGScq02/S7MvGSROC6jkkzK0n
FYV/awH/yValdgudpl+QsbkNLk3xlCvSf3yHBZMGxh+Xb+zqJXj8X+YTnk
S63U3elBH3bdVOvSW3LhW/Q8RmWE2nsViNMAKXpUi0jFbqVzEBcCg
2iqantQc1Sk3TEviK34eJsNKLIW22lH20iSFT1GM5UHSD2baeHOW9eh
```

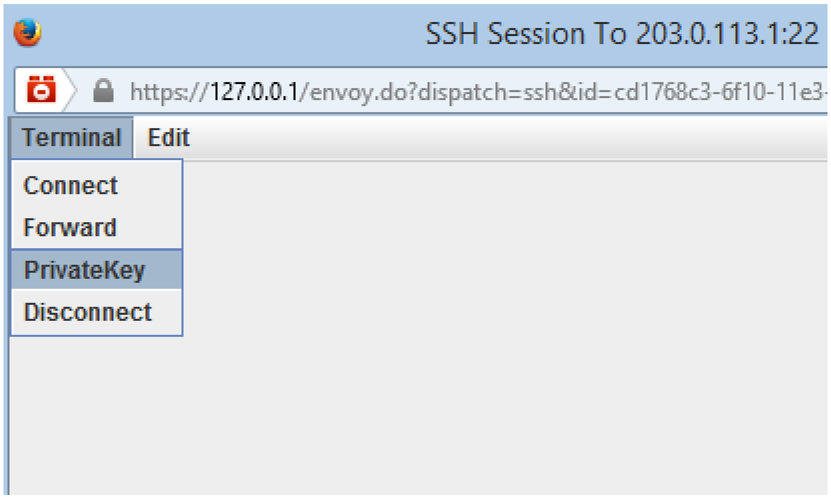
*Paste in authorized SSH keys for this user. SSH keys are only used for Uplogix authentication.*

### Set SSH Private Key Location in Browser

Log into the Control Center, navigate to a Local Manager, and click on a CLI applet button.

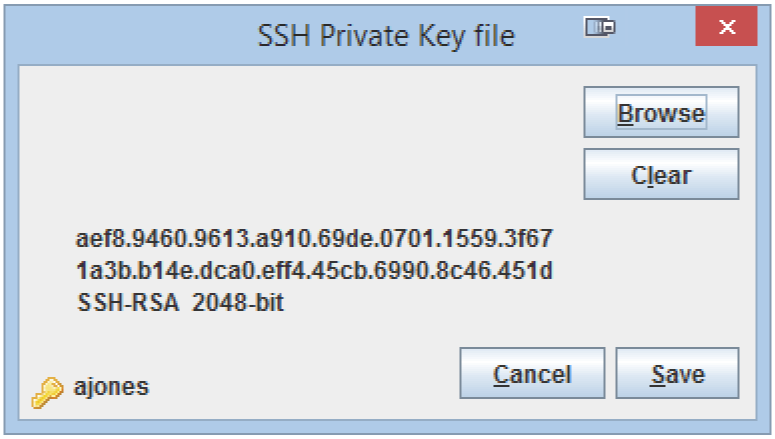
Upon clicking `CLI` and launching the CLI applet, you may be prompted with a couple windows asking for confirmation that you trust the Control Center certificate and to allow the CLI applet access to your workstation – you must trust the certificate and allow the applet access to your workstation in order to continue.

Once the applet finishes initializing, click the `Terminal` menu selection at the top of the screen and then click `PrivateKey` in the submenu as shown below.



SSH Session To 203.0.113.1:22
https://127.0.0.1/envoy.do?dispatch=ssh&id=cd1768c3-6f10-11e3
Terminal
Edit
Connect
Forward
PrivateKey
Disconnect

Next, click **Browse** on the popup menu, browse to and select the private key file, then click **Open** to set the path as shown below. Finally, click **Save** to save the path to the private key in an Uplogix cookie in the browser. Close the applet window.



```
aef8.9460.9613.a910.69de.0701.1559.3f67
1a3b.b14e.dca0.eff4.45cb.6990.8c46.451d
SSH-RSA  2048-bit
```

ajones

This completes configuration for user ajones – ajone’s public key is stored in the Control Center and the path to the private key is stored as a cookie in ajone’s browser.

## Usage

Once the private key has been configured as specified above, the CLI applet failover feature is configured and active. To use the CLI applet to access the console port of a managed device, connect to the web interface of the Control Center and navigate to the Inventory page. Select an Uplogix device from the Inventory tree to bring up its detail page. Launch the Control Center applet by clicking on the **CLI** button. The applet should establish and authenticate the SSH session without the user having to enter a password.

**Note:** Alternatively, this failover may be created by configuring a public key in the user profile and a private key in the CLI Applet authenticates subsequent SSH sessions from the user workstation to Local Managers rather than requiring the user to provide a password in the applet window at each login.

# Support

## Getting technical support

The Uplogix technical support web site allows you to open and review support requests, browse the knowledge base and download software updates. You must have a user account to view this site.

### Requesting an account

To create an account, send an email to support@uplogix.com with the subject line “create account”. Include this information:

- organization name
- account user’s email address
- user’s general contact information

### Requesting support

Uplogix provides 24x7x365 support. If you need to contact Uplogix customer support, please provide this information:

- Product model
- Serial number and software version (use the `show version` command from the command line or use the arrow keys on the front panel to scroll through the information on the display)

Phone: 512-857-7070

Fax: 512-857-7002

URL: support.uplogix.com

### Providing comments about this guide

Did you find the information you needed?

Was it accurate?

Did it help you?

Please contact our publications staff at support@uplogix.com to notify us of any issues with this guide's accuracy, completeness, or clarity.

We want you to be successful using our products. If you find a problem with this material, we will do our best to fix it.